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Mr. Burne-Jones's Pictures at the New Gallery.

THE collection of the works of Mr. Burne-Jones at the New Gallery forms a remarkable record of a life of conscientious devotion to a chosen ideal. Not a single picture is here which can be regarded as painted for the market, not a single one which does not testify to a devotion, with all his powers, to the aim set before himself by the artist. That aim, as far as we can judge from the works themselves—for the artist has made no definite profession of his faith in any literary form—may be defined to be the expression of a romantic ideal of life, combined with the aim at decorative effect in line and colour. Nearly all, if not all the works here must be regarded in that twofold aspect. Each of the groups or figures is the expression of an idea to be conveyed through the medium of the figures pourtrayed, but with the condition that such pourtrayal shall always be decorative in its effect of line and colour; and inasmuch as decorative effect must always imply a certain conventionalism of treatment, it is inevitable that we should, in such a type of art, find that we must give up something from the lifelike pourtrayal of the variety and expressiveness of nature. Thus it is that we are conscious of a certain monotony in the types employed. Nature is always various, always strongly marked by individuality in each separate form of life. Just as the ornamentist, in dealing with natural types of foliage, has to give up something of the detail which makes their natural variety, in order to reduce them to forms suitable for decorative treatment; so the decorative painter, in making use of human types, must give up something of their lifelike variety and individuality of expression and character, in order to bring them within the boundaries of the form of art which he has adopted.

Perhaps this selection of a type of figure conformable to the painter's aim may have been carried further than was absolutely necessary. Still, our judgment of such paintings must be made with the recollection of this decorative intention before us. We have no right to demand that which is incompatible with the obvious aim of the artist, unless where he strays into subjects which really demand the intense expression of natural life. Occasionally Mr. Burne-Jones does this, and then we have perhaps a right to feel that he falls short in qualities which the subject specially demands. An instance, as it seems to us, is the picture entitled "Love Among the Ruins" (42), the title of which was evidently suggested by Browning's remarkable little poem under that name. The essential point in that poem is the contrast between the ruins, which tell of a life long since past away, and the intense interest and passion of the existing life enshrined among them. But the picture in the New Gallery gives us nothing of this dramatic contrast. The lovers have no exuberance of life in them; they are as wan, as wasted, as quiescent, as melancholy as the ruins themselves; and here is unquestionably a false note. The same shortcoming is to be felt in the remarkable series of pictures under the title of "The Briar Rose"; not represented in the New Gallery for the sole reason that the panels could not be detached from their place for exhibition. In this subject the sleeping figures of the enchanted palace fall exactly into the way of Mr. Burne-Jones's quiescent and decorative art; but the fairy prince, who represents the advent of life and love to wake up the sleeping palace, is almost as quiet, as melancholy, as destitute of the energy and passion of real life, as the sleepers themselves. Here, again, the contrast intended in the legend is lost in the picture. But these are exceptional cases, because the artist, conscious of the direction in which his powers lie, has for the most part confined himself to subjects which come within his range.

It is interesting to compare the early pictures, some of which we remember well, and are glad to meet again after a lapse of some twenty or more years, with the recent works in which the painter has brought his peculiar powers to perfection. The early works are small in scale, and the figures but stiffly treated; and in some, as "Merlin and Nimue" (2) and "The Forge of Cupid" (10) the landscape and figures seem to form one conception, and to be equally important in the expression of the idea; in the first named work indeed, the dark rich tone of the landscape and the effect of light over the hills in the background form the most important element in the picture. In "Love Disguised as Reason" (13), one of the most charming and successful of the artist's earlier works, the figures are predominant, the landscape a mere accessory; and the still finer "Phyllis and Demophoon" (17) is nearly a pure figure subject, the tree from which the metamorphosed nymph suddenly leans forming merely the background (necessary to the legend) to support the figures. This still appears to us one of the finest of the artist's works, in composition and in force of expression, though the decorative element is much less prominent than in most of the later ones. It seems almost incredible now (what some of our readers may nevertheless remember) that this fine and poetic picture was actually removed from the walls of the Society of Water Colours, after it had hung there a few days at one of the annual exhibitions, in deference to the vulgar prudery of persons either within or without the society, who could not understand the difference between poetry and realism in art. The fact that it has re-appeared on the walls of the New Gallery without (as far as we have heard) causing dismay to anyone, is an indication that the British perception about art has at all events progressed a little in the interval.

There is a wide interval in style between the earlier works with the small figures and the later ones with which the rest of the west room is mostly occupied. The scale is larger, the drawing and colouring of the figures far more careful and finished. There is a very noticeable difference, among other things, in the treatment of portraits. In the small full-length portrait of "Sidonia von Bork" (11), painted in 1860, the real object of attraction to the spectator, and apparently

to the painter, is the rich and elaborate design of the dress; the face is wanting in life and character. The portrait of a little boy, "Philip Comyns Carr" (25), painted in 1882, is frankly a portrait, a delightful specimen of child-portraiture, in which the face is the main point of the picture. The portrait of the painter's daughter, now Mrs. Mackail (24), painted in 1886, is equally a portrait pure and simple, except in regard to the special effect gained by the circular mirror behind the figure, showing the back of the head, and importing a light into the work; it may rather be doubted, however, whether this device is not injurious to the portrait as such, disturbing the beautiful simplicity of the face and dress. Among the more important works in this room, "The Wine of Circe" (36: 1869) is one of those which most completely illustrates the painter's special powers. As a mere piece of decorative effect, finished in every detail, it is splendid; but it gives also an intense impression of the glamour of the legend: the lithe serpent-like attitude of Circe, stooping stealthily across the picture to drop the black glutinous poison from her flask into the wine, forms one of the most weird embodiments in modern art of that ancient sorceress. A still more powerful work in the way of weird expression, though less attractive in a decorative sense, is the remarkable picture "The Depths of the Sea" (34; 1886) which formed Mr. Burne-Jones's contribution to the Royal Academy the year he was elected. The expression of the face of the mermaid has a *finesse* of sportive malice which reminds one of some of Lionardo's heads (one or two chalk studies for it in another room show how carefully it was prepared); the look of movement through the water, and the tail-fin curled up clear of the ground over which the creature is moving, combine to give a wonderfully real effect to the whole. The artist's power of giving a new reading and motive to an ancient legend is shown, as in the "Circe," in "Danae" (59; 1888) where it seems to have occurred to the artist to consider, for the first time we think among artists and poets, how the building of the brazen tower was looked on by the victim. There is a thus a new intellectual interest given to the legend, and in another sense we may admire the fine effect, in the composition, of the tree which backs up the principal figure, as well as the interesting and minute painting of an old-world and pre-historic architecture. In the series of "Pygmalion and the Image" (47—50; 1879) we again see the painter putting new life into an old legend; giving a kind of Mediæval holiness of expression to what was in the Greek mind a merely sensuous story, as it was very frankly treated by Gerôme in his sculpture group in last year's Salon. It is interesting to compare the French sculptor's clever but rather vulgar realism with the English painter's poetical treatment of the same theme, to which "clever" would be the very last word one could apply; and to say truth, the animated statue is not immaculate in design, regarded as a nude figure; like Andrea del Sarto before one of Raphael's pictures (see Browning), we are divided between admiration for the spirit of the work and questionings as to the proportion and modelling of the limbs. The nude figure, however, is a very rare undertaking with Mr. Burne-Jones, in his finished pictures at least; but his draperies are superb. Two fine examples are "Sibylla Delphica" (29; 1877) and "A Sibyl" (33; 1874), the former a beautiful piece of colour; the latter especially remarkable for the bold and broad style of the drapery. "Fides" (38; 1872) is another of the same class, in an architectural framework; unfortunately one cannot but find that the head of "Fides," from which one would expect so much in the way of expression of the idea, is the least interesting part of the composition; the decorative effect of the whole is most satisfying, but one almost feels that the head might do for any other "Virtue," if the title were altered.

There is in other more important works this kind of conflict between the decorative and the intellectual element. The "Days of Creation" (23; 1877) is superb as a decorative work; in this sense it is by itself a thing to immortalise an artist; but as a symbolical representation of the Creation we have always felt it to be naïve almost to the point of childishness, and a renewed acquaintance with it does not modify this feeling. The "Wheel of Fortune" (30; 1883) has received almost extravagant praise, and it is a grand composition, not least so in the treatment of the massive wheel seen in perspective; the head of the principal figure is too small (as may be said also of the "Danaë"). But as a conception it appears to us to illustrate the danger of treating allegory in painting. The very material-looking wheel (reminding one a good deal after all of a great fly-wheel in a factory engine) and the figures bound on the rim of it, seem to reduce a great idea too much to the level of a symbolical diagram; in fact, there is just an under-suspicion of the ludicrous about it, the fact being that a metaphor which is very powerful and impressive in poetry may be unsuitable for reduction to painted form, as certain also of Mr. Watts's pictures show. Such a work as "Golden Stairs" (51; 1880) suggests no such contradiction of thought; it is an artistic conception complete in itself, a moment of beautiful effect and grouping of ideal figures, which professes to tell no story, and preserves the balance completely between what painting can show in fact and what it can express in meaning. So does "The Hours" (52; 1883), a beautiful symbolical composition not marred by any machinery; so does the "Chant d'Amour" (40; 1865), the first, we almost think, of the artist's large subjects; a little too palpably, perhaps, an emulation of Giorgione, but so successful an emulation that one can in no way complain of it. There are not too many Giorgione paintings in the world, and a painter who can make another, as good as the real thing, is even on that account a person to be made much of. "The Mill" (46, 1882) is another of those in which there seems a conflict between the idea and the execution; as a piece of colour it is beautiful; it is worth while to look close at the little bathing figures in the background and note their peculiar colour, and then observe how admirably it falls into the scheme when the picture is viewed as a whole. The curious thing is that this is a realistic mill and realistic figures bathed in colours of a kind of dreamland; the forms are of this earth, the light and colour are of the land of faërie; and a certain incongruous feeling is the result.

The "Design for a Mosaic for the Church of St. Paul at Rome" (67), which we had the pleasure of illustrating last week, is here again, not in so good a light as in the previous exhibition in the autumn. This appears to us one of the most complete and successful works the artist has produced, because here the decorative and the intellectual (or spiritual) idea are completely in accordance; the destination of the design for mosaic justifies the completely conventional treatment adopted, the adoption of which has in no way interfered with the expression of benign love in the face and attitude of the Christ. In a very different way we may cite, as a remarkable example of purely decorative design combined with strongly marked character, the design for a "Sea Nymph" (44; 1880) or rather mermaid, made if we mistake not for stained glass; the treatment of the sea, which would hardly be defensible under any other supposition, completely conveys that idea. The way in which the combination between woman and fish is worked out is so forcible and real as almost to persuade us of the possibility of the combination; and the floating mass of crimson hair, somewhat recalling seaweed, adds both a touch of character and a brilliant incident in the decorative scheme.

Nowhere, however, are Mr. Burne-Jones's power and delicacy of invention in decorative design better illustrated than in the beautiful little pencil drawings of initials and subjects for the Æneid (88 to 94) in the south gallery. Of these it can only be said that they are perfect, and nothing more exquisite of its kind has been produced in any period of art. The collection of sketches and studies in this room is full of interesting and beautiful work, over which however we cannot linger now. It may be added that Mr. Hollyer's collection of photographs from the artist's works forms an interesting feature in the gallery of the exhibition, which has been devoted to them.

In looking round again through the exhibition as a whole one cannot but be struck with the immense amount of careful, minute, and painstaking work which it shows. For this class of painting, in which decorative effect predominates, is that which can neither be designed nor executed quickly. It requires the greatest care and study in laying down the lines of the composition, the greatest finish in the execution of detail. An artist who can show such an amount of work with these characteristics has obviously lived for his art, has allowed nothing to draw him aside from his central aim. As a French contemporary recently remarked, Mr. Burne-Jones's supremacy as a decorative artist has been attained by years of unremitting study and constant effort after nothing short of perfection in the type of work at which he has aimed.

THE STUDENTS' DRAWINGS AT THE INSTITUTE.

THE drawings submitted for the annual competitions at the Royal Institute of British Architects this year reach a very high standard, and in many cases considerable difficulty must have been experienced in awarding the prizes. It is highly gratifying to note that, throughout, preference has been given to the more solid qualities of good design and serious, well-directed study, rather than to mere excellence in draughtsmanship.

In the award of the Soane Medallion and Travelling Studentship of 100*l.* this is particularly the case, the perspective submitted by Mr. A. J. Bolton, the successful competitor, being, as a drawing, one of the feeblest submitted. The subject set was a difficult one, a design for a railway terminus, and rendered none the more easy by the fact that the same subject was set by the Royal Academy a few years ago for their Gold Medal and Travelling Studentship. As might be expected, many of the competitors shirked the chief difficulty of the problem, the expression of the station roof on the front elevation, even although they had not the excuse of a large hotel, as in the case of many of the termini that we know in reality. The author of the winning design has, by making his booking-hall lofty, found it possible to bring the line of his station roof to the front, and makes his building look like a railway terminus. The plan is well arranged, the booking-hall being clear and unencumbered, while the booking-offices are well placed and grouped together. In the arrangement of the platforms and train docks, the suburban traffic is rightly kept distinct, but would hardly be sufficient in view of the modern great extension of that traffic, not only in London but in almost every town of sufficient importance to possess a terminus. The waiting-rooms, refreshment-bars, and dining-room, and other accommodation for both public and staff are well arranged, and a thoroughly workable plan is produced. The offices of the company are arranged on the first floor without difficulty. The front elevation adequately expresses the character of a railway terminus by the introduction of an enormous arch, abutted by two lofty towers, and suggests that the designer has taken note of the buildings of the last Paris Exposition, though without plagiarism. The

side elevations are not equal in character to the front and have rather a domestic look. The design of Mr. J. S. Stewart, who received a medal of merit, has a plan in many respects similar to that of his successful rival, but the booking-hall in front is kept low and the station roof at the back is simply treated with a great arched window and flanking towers. The style adopted is a quiet and dignified rendering of modern French Classic, while the perspective is one of the best drawings in the competition, executed in monotint. The design of Mr. A. C. Houston, who also receives a medal of merit, probably owes that distinction entirely to the merits of the plan, as the author has masked the station proper entirely by his offices, &c., in front, and has designed his building in a commonplace type of Renaissance, shown, however, in very excellent drawings.

Comparing these designs it is clear that the prize has been won by the bold expression of the station to the front and considerable originality in design combined with an excellent plan, while the medals of merit have been awarded in the one case to dignified design and good draughtsmanship, in the other to good planning and drawing. This being so we should be inclined to give a high position to the design under motto "Perseverando," which possesses a good plan and excellent draughtsmanship combined with a clever adaptation of the latest craze in fashionable design, early Spanish Renaissance. The booking-hall is here kept low and has a glass dome over, while the station roof shows up well beyond with its flanking towers. We cannot say that the design is either particularly suitable for the character of the building, or equal in all respects to any of the three to which prizes have been given. "Blemundsbury" has a good plan, but entirely lacks dignity in external design, which in no way expresses the idea of a railway station. "L.O.C.O." is another design which, clever and forcible as a piece of ornate building, has missed the mark, and suggests rather a more than ordinarily extravagant striving after the picturesque of the German Renaissance. "Principium" we might almost suppose to be a joke, but we will credit the author with the intention of expressing what he supposes to be the character of a railway station by sheer mass and the avoidance of detail. Even the impression which the designer would seem to intend is, however, marred by the infantile repetition in the small windows of the parabolic form of the great arched window ending the station. The author of the design marked with a "Green device" (which suggests a conventional representation of three tadpoles) is the only competitor who ventures on a Gothic design, which in some of its parts is not without merit, though the plan of the booking-hall is quite spoilt by the vaulted corridor which forms its surrounding parts. The iron shed-roof of the station seems to indicate that the author despaired of giving an architectural expression thereto in Gothic language.

The biennial competition for the Owen Jones Studentship has this year, we are pleased to note, resulted in the success of a student, Mr. A. H. Powell, whose work, with the exception of a sketch of some stained glass at Beauvais, is entirely taken from English examples, and the excellent manner in which this gentleman has made large size studies of coloured decoration from East Anglian screens and other sources is a welcome change from the tendency in past years amongst the competitors to make water-colour paintings rather than serious and useful studies. At the same time such drawings as that of the apse at Copford Church, Essex, the wall-paintings at Pickering Church, Yorkshire, and the details of Southwold screen, show that the author is no way deficient in draughtsmanship. Mr. Francis Masey has again been unsuccessful, though very near success, and can only attribute his failure to the more workmanlike studies of his rival as opposed to his own water-colour paintings. Mr. A. H. Paterson tails also in the same direction to a certain extent, while he has, perhaps, made his contributions prove rather the extent of his travels than the sufficiency of his discrimination of colour. Mr. A. T. Bolton has relied too much upon his drawings of mosaic work to stand much chance with such competitors as he has against him.

In the contest for the Pugin Studentship we again find success rewarding somewhat of a departure. Mr. J. J. Joass has none of the *petite* style of sketch with fine pencilling that too often appears in this competition. His studies are workmanlike, sufficiently large to show the architecture to real purpose, and both measured drawings and perspective sketches are good and sufficient, while his colour studies are also of fairly high character, though not quite so thorough as those of the Owen Jones student. Mr. T. A. Sladdin, who receives honourable mention, may credit that to his careful and painstaking measured drawings of Fox's chantry at Winchester. His pencil sketches are good and well executed but for the most part too small both in subject and scale, whilst his one coloured drawing serves only to show that he has still a good deal more to learn. Mr. H. Brakspear, who also receives honourable mention, fails in his measured work. His drawings of the North Porch of Wells are not so true in the mouldings as is desirable, and the vaulting is not worked out with sufficient care. His freehand pencil sketches are of excellent character, and have probably largely contributed to the partial success achieved. Mr. J. P. Cooper's drawings are remarkably unequal in character; if all were up to the level of his best, a much higher place would probably have been attained. Mr. C. E. Errington spoils excellent pencil work by tricky and erratic shading, a *reductio ad absurdum* of the modern American style of draughtsmanship, and the same fault exists to some extent in the work of Mr. H. C. Corlette, whose contribution is also deficient in measured work. Mr. P. E. Newton also lacks measured work and sends too many "little bits," shown in too great a variety of medium. Mr. F. Lishmann also handicaps his good colour work and pencil drawing by a deficiency of measured work and tricky shading. Mr. W. R. Gleave, on the contrary, shows careful and good measured drawings, but his pencil perspective sketches are both weak and faulty in drawing.

The drawings submitted for the Tite Prize, showing the interior of the east end of a large town church, are fairly equal in merit, and also adhere with tolerable correctness to the principles of Bramante, Palladio, Wren, or Chambers, as laid down in the instructions, though the design of the successful competitor, Mr. C. A. Nicholson, whilst catching the spirit of English eighteenth century work, is, strictly speaking, somewhat at variance with the work of either Wren or Chambers. As a matter of church design we do not admire the gallery overlooking the chancel, which the author has placed above the morning chapel, on the north side. The organ is well placed above the vestries on the south side, and no complaint can be made of the adequacy of its accommodation. The design of "Crescendo" keeps more strictly to the style of Wren, but the placing of the morning chapel in so isolated a position as is here adopted is hardly satisfactory, while the organ is too small for modern requirements and for such a musical service as the instructions evidently contemplate. "Incognita" has a well-drawn design in an Italian version of Renaissance, with the chapel on the south side and again too much cut off from the rest of the plan. "Modern Worship" in drawing and detail has great merit, but the placing of the organ above the altar and reredos is hardly in the spirit of the motto, while the design is not really for an East-end, as the apse is beyond and superfluous, and the design is really that of a domed space over the body of the church.

For the Institute Medal and 10 gs. for measured drawings, a very careful and thorough set, by Mr. G. S. Hill, of the crypt to Glasgow Cathedral, takes the first by dint of thoroughness and completeness; beyond that is the drawings of Lacock Abbey, which are superior as drawings, and include an excellent perspective. The drawings of St. Peter, Howden, are inferior to both the former in completeness as well as in draughtsmanship.

The competition for the Grissell Medal and 10 gs., the subject being a design for a timber roof over a hall or staircase 40 ft. square, has produced a very inferior set of drawings. Instead of the medal, a prize of 5*l.* 5s. has been awarded to Mr. W. J. Conner, who has used some Elizabethan detail, but has produced a design which lacks both beauty and cleverness of construction, while the construction even is not adequately delineated. "Patria" shows his construction fully, but makes no attempt whatever at any architectural character of design; while "Construction" has some design which may best be described as "brass founders' Gothic," and construction which is neither clever nor sufficient.

Mr. H. Rimmer, the Soane medallist of last year; Mr. F. W. Bedford, the Owen Jones student; and Mr. T. R. Kitsell, the Tite prizeman, exhibit work executed by them on their respective tours, and it is a pleasure to see the high quality of draughtsmanship and the excellence of the water colour work which these gentlemen have produced.

Testimonies of study submitted by some of the candidates for the intermediate examination show a high standard of draughtsmanship and a careful and painstaking amount of study which is sufficient in itself to justify the new system of progressive examinations as an incentive to methodical and regular studies. We hope, however, that we shall not again see students' drawings of "the Doric order of the Parthenon" allowed to be exhibited, in which the columns are shown with an enormous visible entasis, equivalent to several inches of deviation from the straight line. This exaggerated notion about the entasis of Greek columns is one of the popular errors among students and draughtsmen at present; and a drawing showing the error to so flagrant an extent as the one we noticed ought not to have been passed, much less hung up for exhibition.

NOTES.

A PARAGRAPH in the *Times* of the 10th, "from a correspondent," and apparently written in the interests of the Brompton Oratory, raises a lament over the apparent delay in the building of the new portions of the South Kensington Museum. The writer, after mentioning that the buildings had been entrusted to "Mr. Aston Webbe" as architect (the facility of the *Times* in making blunders over names of well-known architects is remarkable), goes on to say that—

> "Parliament voted £5,000 to start the foundations for that portion of the buildings which was to be taken in hand at once. But no visible commencement has been made. Some extensive corrugated-iron houses are being erected in the inner quadrangle of the South Kensington Museum, which they threaten to entirely block up, and it is now said that the present Government, so bountiful in promises to the country to promote education, science and art, and technical instruction, has decided not to proceed with the permanent buildings for the Museum."

Various reasons are then suggested for the supposed abandonment. We are informed on good authority that there is not the slightest ground for this fear that the new buildings will be abandoned. The Treasury have completed an agreement with the architect, and the Office of Works are at present engaged in putting up the temporary buildings to accommodate the part of the collection disturbed by the new buildings. The real fact, we believe, is that the Chancellor of the Exchequer is bent on making a popular Budget, and architecture, as is usual in this country, is of

course the first thing to be postponed, in order to keep down the apparent demand upon the revenue. There is no reason to suppose that the postponement will be prolonged further than is necessary to serve the immediate political purpose.

COMPLAINTS of advances in railway rates have already become sufficiently numerous to cause the Board of Trade to call the attention of the railway managers to the matter. A letter has been addressed by Sir Courtenay Boyle to the Railway Companies' Association, asking "whether the rates at present entered in the rate books are to be taken as an expression of the deliberate opinion of the companies in regard to the rates which are in the future to be charged; or whether a reconsideration of the several circumstances attending them may be expected at an early date." This has elicited a reply confirming our impression that the revision as it at present stands will not be final, especially where it is likely to cause any considerable disturbance to trade. Where no protest is made, the new figures will, of course, remain undisturbed. Sir Henry Oakley takes occasion to remark that in order to satisfy the requirements of the Act the revision has been carried out under great difficulties, and that the companies have perforce adopted certain courses contrary to their own wish and judgment. It appears that it is their intention to make further special provisions where necessary as quickly as possible, and that a committee of general managers has been appointed to meet the traders and discuss any grievances which have arisen. The present certainly seems a singularly inopportune moment for raising the charges upon agricultural produce, yet this appears to have been largely done; while the Chambers of Commerce have been notified of heavy advances upon other descriptions of traffic. A peculiar resolution was adopted by the Bristol Chamber last week, requesting the Board of Trade to delay the enforcement of the new rates for three months. This cannot, of course, be done, but the letter from the Railway Association states that many of the alleged grievances will disappear before the end of February, and that all complaints will be immediately investigated. The Board of Trade have issued an analysis of the various Acts bearing upon this subject, which comprises all the new schedules and an alphabetical classification. This will be of much assistance to traders who have not gone to the expense of purchasing the different Acts; and although the book contains 232 pages, it is published at a shilling. The information given may be supplemented by a table showing the charge usually made by railway companies for cartage,—an item which is not dealt with at all by the Acts, but which must not be lost sight of in calculating a rate which includes collection and delivery. The following is given by Mr. Cotsworth as a fair basis of cartage cost*:—

	Per Ton.									
Class	1		2		3		4		5	
	s.	d.	s.	d.	s.	d.	s.	d.	s.	d.
Provincial towns ...	1	3	1	8	2	1	2	6	3	4
London, &c.	3	9	4	2	5	0	5	10	6	8

Of course, when it is found that this charge is included in a rate, and the company do not perform the service, a rebate should be claimed.

THE recent deputation to Mr. Asquith, the Home Secretary, to urge the appointment of a Minister of Health and various reforms in regard to burials in the interest of the health of the people, was influential and successful, for it obtained from the Home Secretary what was in effect a pledge that he would institute an inquiry in regard to burials, cemeteries, and so forth. Mr. Asquith pointed out, among other things, that as the law now stands Local Sanitary Authorities could be compelled to erect mortuaries; but it is questionable whether more detailed and direct legislation on this particular point is not required. As regards the appointment of a Minister of Health, the deputation in effect was told that their request was unnecessary and impossible to be obtained. Theoretically, a Minister of Health may be well enough, but in fact the President of the Local Government Board and, at times, the Home Secretary, are Ministers of Health, and it is doubtful if any public advantage would be obtained by the creation of a new office. The present principle, viz., to leave the initiative in matters of public health to the Local Authority, and to leave the Government department in London to supervise to those who are primarily responsible, combines a certain amount of local freedom and self-government with central control. Whether, if every locality were governed in sanitary matters by a central department we should be in a better state at present is by no means certain. A Government department which can advise, superintend, and urge on local bodies is likely to be more vigorous than one which has the whole duty of administration. Nor can there be any doubt that local responsibility in sanitary matters educates the people in sanitary science; and though there is yet much to be done in this direction, the progress of the country during the past decade has been marked and satisfactory.

THE inconvenience that consumers are put to in time of frost, such as is now being experienced, is very serious. The water companies have regulations, which, if they were enforced, would prevent at least nine out of every ten houses being affected. Unfortunately, the companies not only neglect their duty in this particular, but also that of providing stand-posts to supply the parts of their district that are affected. This is especially apparent in the case of small property, an instance of which was given by the Surveyor to the Wimbledon Local Board in reporting to his authority on the 3rd inst. In the case mentioned, a portion of South Wimbledon, having a population of above 5,000 persons, was supposed to be amply provided for by the water company who had fixed four stand-posts, and that after notice from the Local Board. The distance that the greater part of the householders had to draw water was more than a quarter of a mile. Such cases as this should certainly be brought under the notice of the Royal Commission on Water Supply, especially when the enormous profits of the water companies are taken into consideration. These profits are no doubt due, to a large extent, to neglect of duty on the companies' part in not providing sufficient staff to see that their regulations are enforced.

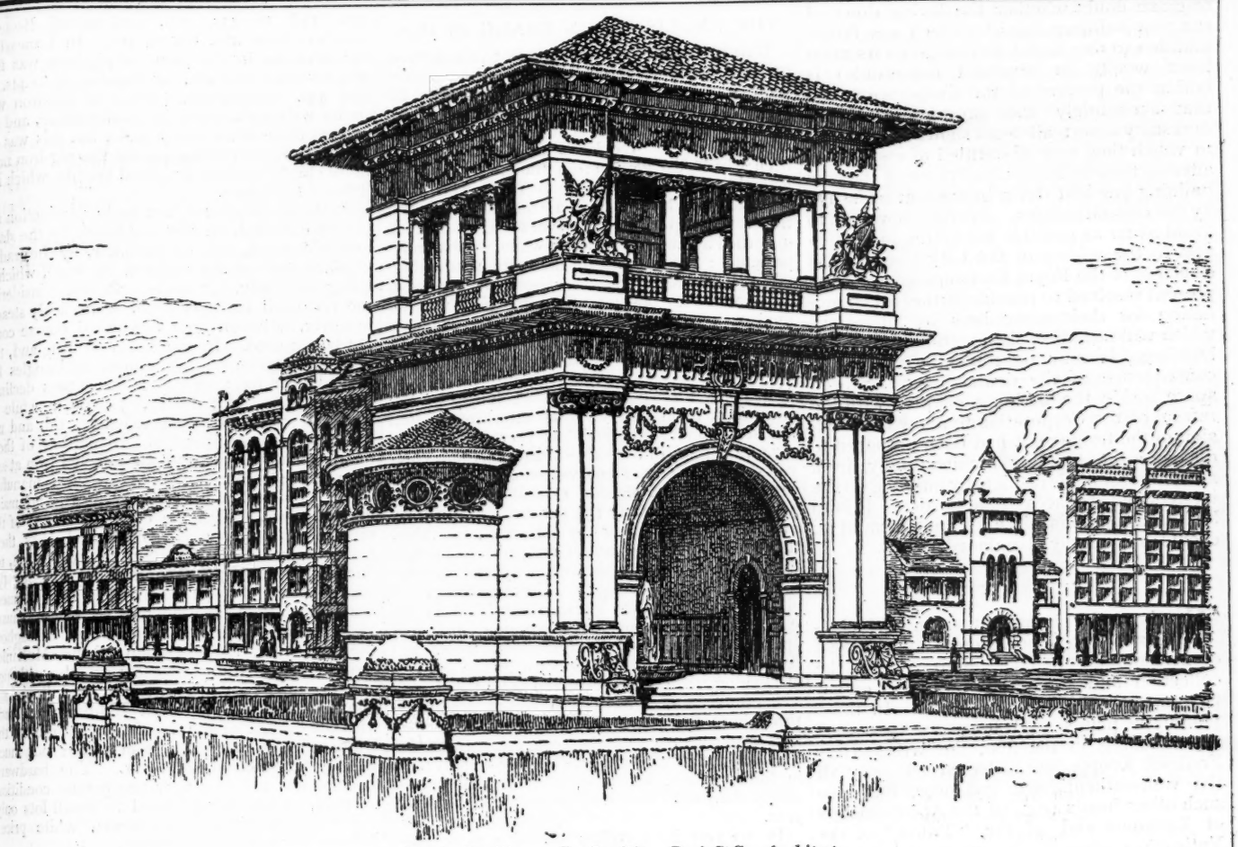
WHEN writing last week of the probable effects of the new railway rates we happened to select the coal trade, as affording an instance of the conflicting nature of the reports on the subject; and since the "Note" in question was written the evidence has become still more confusing. The Society of Coal Merchants of London have drawn public attention to the fact that the recent revision of rates "has caused the railway companies to advance the charges for bringing coal to London by debiting the freighters with the same tolls per ton of 2,240 lbs., as they have hitherto levied on the ton of 2,352 lbs., except a small allowance for wastage in transit." Consumers have long been familiar with the fact that any disturbance, of whatever nature, in the coal trade, is promptly followed by an advance in prices; and but little surprise would be caused by the rise foreshadowed by the coal merchants' circular, were it not for the positive assertions made by the railway managers that they "stand to lose" heavily by their new coal rates. A large proportion of the coal brought to London by rail is carried by the Midland, yet we have been told that that company will lose 60,000*l.* of its coal revenue. Suppose that this was written before the railway companies hit upon the idea of somewhat reducing their loss by charging for the overweight hitherto carried free. To begin with, the "small allowance for wastage," alluded to in the coal merchants' circular, should not be lost sight of. This amounts really to 2 cwts. per truck, thus reducing the extra weight upon which freight will now be chargeable to ¾ cwt. per ton. Put the average freight at 10s. per ton, and it follows that the freighter will be called upon to pay 4½d. more for each ton carried. Are we to believe that such an advance more than balances rate reductions involving a loss of 60,000*l.*? Certainly we do not feel at all disposed to accept the latter figure as correct—it is doubtless an extravagant estimate;—but we are equally disinclined to believe that freighters will have nothing at all as a set-off against the 4½d. per ton, or thereabouts, which is so freely paraded before the public as an imposition, which will necessitate an advance in the price of coal.

AN appeal of one Alfred Solomon, against a conviction at the Worship-street Police-court for an offence under the Public Health (London) Act, 1891, came before the County of London Sessions this week. The appellant had been convicted because the drain and water pipes, and the other so-called sanitary fittings of a house in Bethnal Green-road which belonged to the appellant, were in a very defective condition. We are glad to say that the appeal was dismissed with costs. Sir Peter Edlin said that the owner was now responsible for the sanitary state of his property, and that the law as it now exists must be strictly enforced. The decision will, we hope, do something towards making careless landlords more regardful of their duties, and will also incite Sanitary Authorities to put the law in force without fear or favour, as we have over and over again said. The law is now fairly effective. It rests with Local Authorities to enforce it.

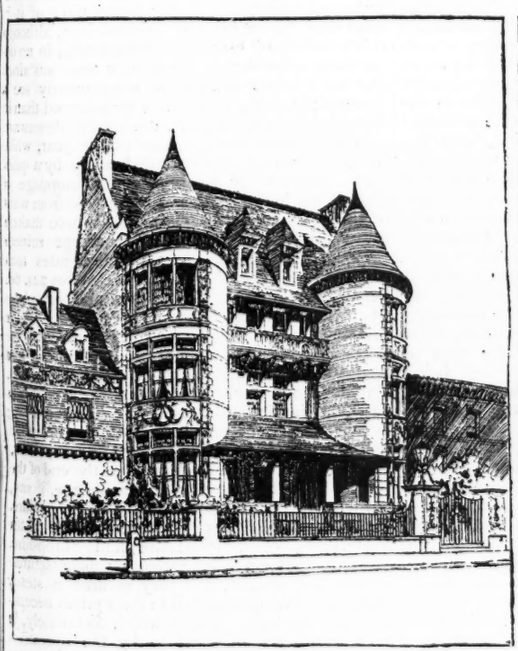
THE freehold property, nos. 34-5, Gerrard-street, Soho, and covering nearly 3,500 ft. superficial, will be offered for sale at the Mart on the 18th inst., in terms of the mortgagees' order, *re* Wells and Croft. The premises were built after the plans and designs of Messrs. Martin & Purchase, architects, for the Pelican Club, of which Mr. A. E. Wells was proprietor. The members removed thither from Denman-street (where they were succeeded by the Eccentric Club) in February, 1890; and the club was finally closed on the last day of the following year. The building stands on the site of Macclesfield House, which, after the fire of August 10, 1887, was officially "condemned." That house was built on a portion of Henry, Prince of Wales's Artillery Ground, for Charles Gerard, first Earl of Macclesfield, of that line, whose granddaughters, Charlotte and Elizabeth, married, respectively, Lord Mohun, and the Duke of Hamilton, principals in the memorable duel fought in Hyde Park, on Sunday, November 15, 1712.* We have read in *Notes and Queries* (October 10, 1885) that Lord Macclesfield left Gerrard-street for a house he had built in Conduit-street, now No. 9,—familiar to many of our readers. His son Charles, second earl, lived for a while with Anne, his wife, in Macclesfield House, before their separation. According to some, she was the mother, by Lord Rivers, of Richard Savage, born on January 16, 1696-7, in Fox-court, leading from Brooke-street,

* "Railway Maximum Rates and Charges." By M. B. Cotsworth. (Bemrose & Sons.

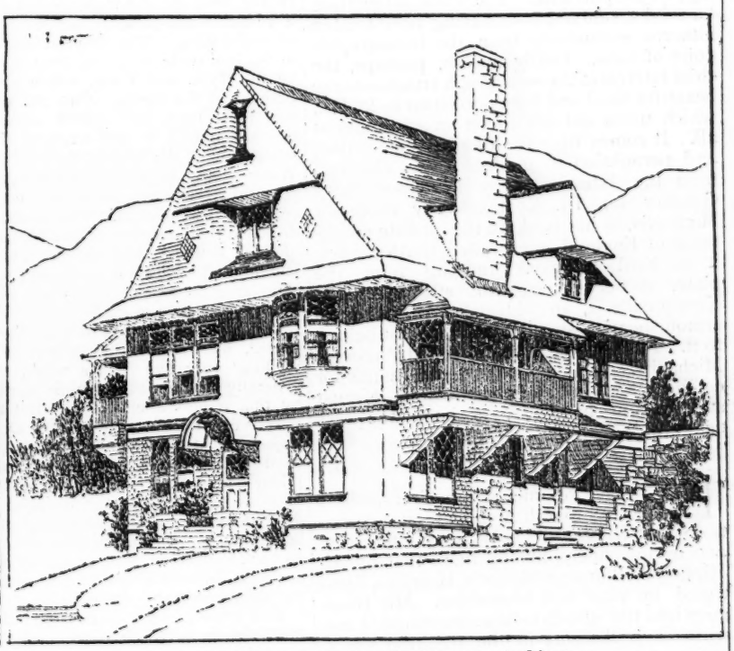
* The exact position of the duelling ground, next south of the Ring, is described in Fielding's "Amelia." In the Historical MSS. Commissioners' Report (1887) upon the Dartmouth papers is a letter written by Swift to Lord Dartmouth—"I am writing almost in the dark in my Lady Dutchess of Hamilton's Bedchamber. Her Grace is on one side, and my Lady Oglethorp on the other. . . . . " The *Dict. of Nat. Biogr.* states that the Duchess survived her husband thirty-two years. So Thackeray seems to be at fault in having affianced Beatrix to Hamilton, who, he says, was a widower.



Music Pavilion.—G. R. Rice, D.A.S.C., Architect.



Proposed Hotel for Dr. Lawrence.—J. J. Huddart, Architect.



A Residence.—Varian & Sterner, Architects.

SELECTIONS FROM THE ILLUSTRATED CATALOGUE OF THE DENVER ARCHITECTURAL EXHIBITION.

Holborn, into the then Gray's Inn-lane. For a notice of the architectural features of the old house, see the *Builder* of March 22, 1884. What is taken to be an entry of Savage's birth and baptism has been found in the St. Andrew's, Holborn, register, by name of "Richard, son of John Smith and Mary."

WE have received a copy of the illustrated catalogue of an exhibition of architectural drawings recently held at Denver, Colorado, by the Architectural Sketching Club of that city. A few Englishmen conceived the idea of holding such a show, which resulted, we are assured, in a really fine collection of ancient and modern subjects, which was visited during a week by about five thousand persons. The catalogue includes a great many illustrations from the drawings exhibited, showing a good deal of the rather defiant search after originality which is a characteristic of modern American architectural design. We give reproductions of two or three of the illustrations. The house with the two bays which have their backs, so to speak, on the centre and look outward each way, up and down the street, is a characteristic design, and there is practical common sense in this arrangement of the windows, however eccentric it may appear at first sight. Among the illustrations we may mention a practical and solid-looking design for a hotel, by Mr. F. E. Kidder; a very simple but picturesque station of the Denver Tramway Company, by Mr. J. J. Huddart; a "Stable to a Wayside Inn," by Mr. J. G. Link; a design for the same class of building, by Mr. W. P. Pulis; and a "Boathouse," by Mr. J. R. Rainbow. These are all of the "American picturesque" order. Other designs based on more classic lines show nevertheless (like the Band Stand which we illustrate) a considerable freedom and novelty in the treatment of old materials. We hope the Denver exhibition may be an annual one, and continue increasing in interest.

FROM a letter printed in the Manchester papers a few days since, it appears that the proprietors of the Manchester Royal Exchange have been advised that it is open

to grave doubt whether the laying down of the new building line (by which any future addition to the Royal Exchange on its main front would be rendered impossible) is within the powers of the Corporation, and that accordingly the proprietors will if necessary assert all legal rights and powers to which they may be entitled of erecting or altering their buildings in advance of the new building line laid down in the notices issued by the city authorities. In order, however, to avoid as far as possible any action in opposition to the wishes of the City Council, the directors of the Royal Exchange have for the present resolved to provide further accommodation for their subscribers by alterations which will not affect the external line of the building. It may be remembered that in consequence of the demand for increased space inside the building, coupled with the refusal of the Corporation to allow of extension of the frontage, it had been proposed to disfigure the building architecturally, in a most unreasonable fashion, by building up the intercolumnar spaces of the portico. It is to be hoped that this piece of vandalism at all events is definitely abandoned.

THE 52nd "Programm zum Winckelmannsfeste" is devoted to a subject of considerable popular interest, *i.e.*, the collection and examination of the extant portraits of Alexander the Great. In three phototype plates and fourteen "process" reproductions in the text, the writer, Herr Fredrich Koepp, has collected not only all the well-authenticated instances, but also such other heads (*e.g.*, of the Apoxyomenos of Lysippus and of the "Triton" of the Vatican) as might throw light on the chronology of the portraits. The whole subject has, he thinks, suffered from having been treated hitherto exclusively from the iconographic point of view. Oddly enough, perhaps, the chief interest of the monograph attaches to the beautiful head and bust published in Pl. III., which turns out not to be an Alexander at all. It comes from the Blenheim collection, and permission to publish it was obtained from the late Duke by Professor Percy Gardner for Dr. Koepp. Why Professor Michaelis, in his book on the private collections of England, ever called it Alexander, it is hard to say. Judging from the plate, it seems so manifestly what Dr. Koepp calls it, an "ideal head" put on to armour-bearing shoulders that do not belong to it. Possibly the armour misled Professor Michaelis. Anyhow, we owe him thanks for calling attention to a head which, if it must still remain nameless, is none the less beautiful.

THE second volume of the Transactions of the Edinburgh Architectural Association (Part I.) contains some very interesting and useful papers, among them that by M. Hippolyte Blanc on Heriot's Hospital, illustrated by plan and elevations. Mr. Blanc goes into the question whether there is any truth or probability in the tradition which assigned this building to Inigo Jones, and concludes that there is not a shadow of real evidence for it. The evidence of the building itself, to our thinking, should be sufficient; it has no resemblance to any known and undoubted work by Inigo Jones. The volume includes papers on Yester House and Drumlanrig Castle, with plans.

WE wish here to express our best thanks to various architects who have addressed to us congratulatory letters and good wishes on the attainment of the fiftieth year of existence of this journal, and of appreciation of the number of the *Builder* in which the "Jubilee" was commemorated. We hope that those to whom we have had no time to reply personally will kindly accept this acknowledgment of their friendly expressions.

THE ENGLISH IRON TRADE IN 1892.

WHEN it was stated this time last year in these columns that not too much ought to be expected from 1892, we were not prepared for the ill-fortune which has attended the operations of the iron industry of this country during the past twelve months. We know now that 1892 has been a bad year for the iron trade, the worst for many years, even worse than 1879, which has hitherto been looked upon as the climax of bad trade. To a great extent business has been much disturbed by labour troubles, to which we shall refer presently; but in the main the continuous falling-off in our foreign trade has been the principal cause, while the position of the iron trade was not improved by home requirements, the volume of which also showed a considerable decline. In reviewing the trade of the past year, we are assisted this time by the opportune appearance of the Board of Trade Returns covering the whole year. We learn from them that our total shipments of iron and steel to places abroad last year amounted to 2,740,217 tons, of the value of 21,763,190*l.*, compared with 3,240,146 tons, valued at 26,877,000*l.*, in 1891. These figures exhibit a decline of 500,000 tons, or nearly 15½ per cent., in quantity, and of 5,114,000*l.*, or 19 per cent., in value. The comparison, it must be remembered, is with a year which likewise showed a serious decrease against its predecessor. Corresponding, if slighter, decreases are likewise exhibited in the exports of other metals (excepting tin and spelter), of machinery, implements, tools, and hardware generally. The consequence of this slackening trade was a restricted output, but very few establishments having to record full work throughout the year. In the train of this slackness came an exceedingly keen competition for the orders which were placed more sparingly than in former years, which manifested itself in the steady downward course of prices throughout the year.

In no year have strikes played a more mischievous part in the iron trade than in the past twelve months, although the chief disturbances were not in that industry, but in the related branch of coal-mining. The only strike worthy of note in the iron trade itself was that of the engineers on the Tyne and Wear, which greatly retarded business in the spring. But the troubles in the coal trade must be credited with the principal mischief done. It was thought that, with the settlement of the sliding scale dispute in South Wales at the beginning of the year, a period of peaceful relations between employers and employed was at hand. This pleasant dream was dispelled by the action of the Miners' Federation of Great Britain, which ordered a week's "play," and more to follow if necessary, with a view of shortening the supply of fuel and of arresting the downward course of coal prices. The federation was compelled to acknowledge the failure of its course, as well as the futility of the plan of working only five days a week, the one being generally condemned by public opinion, the other by the miners themselves. But the most disastrous event of the year was the Durham miners' strike against a reduction of wages, which lasted from March 12 to June 6, and which entailed idleness upon 80,000 miners, besides throwing out of work over 20,000 men engaged in the trades dependent upon a regular supply of fuel. After being out for thirteen weeks, the miners had to go back to work at a reduction in wages of 11¼ per cent., instead of the 10 per cent. asked for at the commencement of the strike.

The consequences of this gigantic strike were most serious to the iron trade of the north and north-west of England, causing an almost entire stoppage of the blast-furnaces at a period of the year when trade in pig-iron is generally most flourishing on account of the commencement of the shipping season. The strike failed completely in upholding prices, and the only results were an enormous loss of trade to the Cleveland iron-masters, which went to other districts, and which will take them years to recover. Scotland, in normal years, draws a good deal of her crude iron from the Cleveland district, and as this supply failed, Scotch ironmasters were able to work their furnaces regularly throughout the year, and to increase their output by about 100,000 tons. In Cleveland it has had the effect of reducing the year's production by nearly 700,000 tons. Although stocks were brought down to almost vanishing point, this had little effect on the price of Cleveland pig, which, from 37s. 9d. in January, rose to only 41s. 3d. in June, and has since steadily declined, being now at 36s. 9d. Nor was the effect on prices more sensible anywhere else. Scotch pig-iron warrants have fallen from 47s. to 41s. 6d.; hematite warrants, in the north-west, from 47s. 11d. to 45s. 9d., and mixed Bessemer numbers from 48s. 6d. to 46s. In Lancashire, the decrease in the price of pig-iron was from 46s. for forge and 47s. for foundry pig to 44s. 6d. and 45s. respectively. Prices of pig-iron were pretty well maintained in Staffordshire, and the makers there did a steady trade, but this was due chiefly to the circumstance that the pig-iron made there chiefly consists of special brands, which it is difficult to replace.

In the manufactured iron trade production was greatly curtailed, on the one hand, by the slackness of demand, and, on the other, by the gradual displacement of the material by steel, which is going on slowly, but surely. Prices, considering the restricted business done, were fairly steady, however, although their downward course could not be arrested. In the north of England, the ascertained price of bars, plates, and angles fell 4s. 3d. per ton; in Lancashire, bars declined 10s.; sheets, 5s.; hoops, 7s. 6d.; while in Scotland common bars receded 7s. 6d. and unbranded bars 10s. per ton. In neither of these districts was the demand for finished iron at any time brisk; in Staffordshire, however, manufacturers both did a very fair business, and maintained prices. With the commencement of the present year the makers of marked bars there have lowered their quotation by 10s. a ton, reducing them to 7*l.* 10s.; but as showing the steady nature of their business, it may be mentioned that they have stood at 8*l.* since January 1891. The tinplate trade was dull throughout the past year, the operation of the McKinley tariff having restricted business greatly, although it is beginning to look up again, and hopes are entertained of an improved condition of trade with the change of the political situation in the United States, a change from which not much should be expected, however. The hardware business was not in a very prosperous condition in 1892, orders being placed in small lots only and for immediate requirements, while prices suffered much from competition.

On the whole, those engaged in the manufacture of steel had a rather better time of it in 1892 than the makers of finished iron, although this is not saying much. Unfortunately, in no department of trade was competition more sustained and more keenly felt, and we consequently see a depreciation in value far more pronounced than in the older branch. In fact, the steady downward course of prices was a feature of the year, while the output was greatly curtailed partly by a quiet trade and partly by the three months' stoppage of steel-works in the north and north-west from want of fuel. Cases, however, occurred where makers rather stopped production than accept ruinous prices. The greatest drop in steel rates took place in Scotland, where boiler plates lost 22s. 6d. per ton, while ship angles fell 20s. and ship plates 15s. Steel boiler plates receded 17s. 6d. in Lancashire, and billets 5s. per ton. In the north of England the fall in steel plates and angles was 15s., rails losing only 2s. 6d. per ton. The decline in steel plates in the north-west was 12s. 6d.; in tinplate bars, 10s.; in angles, 5s.; in rails, 2s. 6d. Steel was kept up pretty well in South Wales, but tinplate bars fell 7s. 6d.; sheets, 5s.; while rails were unchanged at the end of the year. There has not been much change, if any, in the steel trade of South and West Yorkshire. Unremunerative prices only were obtained by the steelmakers of Staffordshire and Shropshire, owing to the keen competition by manufacturers outside the district, but they secured a steady business. The general fall in steel prices necessitated a reduction in wages, which fortunately, in most cases was assented to by the operatives without any needless struggle.

If we were to take the amount of tonnage launched last year as a criterion of trade, we should be able to congratulate shipbuilders on the result of the year's business. The launches aggregated 1,300,412 tons, against 1,300,645 tons in 1891, and 1,303,464 tons in 1890. The building, it will be seen, has been pretty uniform in the three years, but last year's business must be considered unsatisfactory because of the low prices at which tonnage was contracted for. The tempting prices have also probably led to the placing of far more orders for vessels than are wanted in the present low condition of the freight market, a state of matters which, sooner or later, will cause the inevitable reaction following upon over-building. Engineering and the related branches of trade reflected the condition of things that prevailed in iron and steel. Amongst engineers, especially marine engineers, work has not been over plentiful, and locomotive builders have likewise been slack. Ironfounders, if we except makers of cast-iron pipes, reported an unsatisfactory trade; but boiler-makers were doing fairly well last year. Manu-

facturers of heavy machinery, bridgebuilders, and machine tool makers have had a fair amount of work.

It is always difficult to foretell the course of trade in a commencing year, but this year it is a more hazardous undertaking than ever. There are several reasons which induce us to be cautious, for we have entered the new year under peculiar conditions. The new railway rates are generally looked upon as being an additional burden upon trade, the enforcement of which at the present juncture is considered highly injudicious. Then there are ominous signs that further labour troubles are impending. We do not suppose that either railway directors or trade unionists are anxious to kill the goose that lays the golden eggs. Railway magnates are too shrewd a set of men to commit such a blunder, and they will probably retreat from an untenable position. We wish we could be as confident of the action of trade unionists. If only working men were a little more enlightened as to the way in and the conditions under which business has now to be secured, they would be a little less exacting, and strikes would nevermore be heard of. But they are generally ignorant in this respect, and too often look for guidance to men almost as ignorant as themselves and a great deal more selfish. Until workmen are more capable of judging for themselves, labour troubles will crop up, and 1893 promises to yield a good harvest of them. Under these conditions, it would be rash to prognosticate. Of this, however, we are sure, that prices cannot go lower than they are, unless the men are content to take lower wages.

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE fifth general (business) meeting for the present session of the Royal Institute of British Architects was held on the 9th inst., at No. 9, Conduit-street, Regent-street.

Election of New Members.

The following gentlemen were balloted for and declared to be duly elected as *Fellows*, viz., Messrs. Alexander Ross, Inverness; William Arthur Heazell, Nottingham; James Henry La Trobe (*Associate*), Bristol; Silvanus Trevail, Truro.

The following gentlemen, having passed the Examination in Architecture, were elected, by show of hands, as *Associates*, viz., Messrs. William Henry Burt, London; John Melville Keith, London; Arthur Heron Ryan-Tenison, London; William Henry Ward, London; Percy Leslie Waterhouse, M.A., Cantab., London; Theophilus Arthur Allen, London; William Nicholson Cumming, Edinburgh; John James Cresswell, Grimsby; Harold Brakspear, Corsham, Wiltshire.

Mr. Thomas Henry Wyatt was elected by show of hands as an Honorary Associate.

Award of Medals and Prizes.

The Honorary Secretary, Mr. William Emerson, then read the Deed of Award of the Prizes and Studentships for 1892-93, made by the Council in accordance with the terms of By-law 66. The following is a list of the awards:—

The Institute Silver Medal, and 10*l*. 10s., was awarded to Mr. Geo. S. Hill, Glasgow, for measured drawings of the Crypt of Glasgow Cathedral.

The Soane Medallion, and 100*l*. for Continental Travel, was awarded to Mr. A. T. Bolton, A.R.I.B.A., for his design for a railway station. In the same competition, Mr. J. Scott Stewart was awarded a Medal of Merit and 5*l*. 5s., and Mr. A. C. Houston was awarded a Medal of Merit.

The Pugin Studentship (Silver Medal and 40*l*. for Travel in the United Kingdom) was awarded to Mr. John James Joass; and in the same competition a Medal of Merit was awarded to Mr. T. A. Sladdin, and "Honourable Mention" was made of the drawings sent in by Mr. Harold Brakspear.

The Owen Jones Studentship (Certificate and 50*l*. for Travel and Study in Colour) was awarded to Mr. Alfred Hoare Powell.

The Tite Prize (Certificate and 30*l*. for Travel in Italy), awarded to Mr. C. A. Nicholson. In the same competition, a special prize of 5*l*. 5s. was awarded to Mr. R. S. Dods, A.R.I.B.A.

The Godwin Bursary (Silver Medal and 40*l*. for Travel outside the United Kingdom), was awarded to Mr. Banister Flight Fletcher, A.R.I.B.A. There were two other applicants.

The Grissell Gold Medal (and 10*l*. 10s.), for Design and Construction, was not awarded, but a prize of 5*l*. 5s. was awarded to Mr. W. Tait Connor, A.R.I.B.A.

The Essay Prize (Institute Silver Medal and 25 gs.), was not awarded, but each of the two competitors for it (Mr. T. Rowland Hooper, A.R.I.B.A., and Mr. C. Bernard Hutchinson, A.R.I.B.A.), was awarded a sum of 5 gs.

We are asked to mention that the public exhibition of the drawings sent in in competition for these prizes will be open this Friday and Saturday, Jan. 13 and 14, from 10 a.m. to 9 p.m.; and on Monday next from 10 a.m. to 10 p.m., when it will close.

Architecture in Spain and Majorca.

Mr. A. N. Prentice then read a paper entitled "Notes of Tours made during the last two years in Spain and the Island of Majorca." In his introductory remarks the author said he considered no country in Europe possessed the same variety of styles as Spain; and Seville was one of the most interesting of its cities,—a city in which the hands of the Moor could be traced in the tortuous and narrow streets, the courtyards, the ancient walls and aqueducts, and lastly the famous tower of the Giralda. The original tower was built in 1196 by the Moors, and was of the same height as the Campanile of St. Mark's; the Renaissance work was added by the architect Hernan Ruis in 1568, and though considered by some to have spoilt the proportions of the tower, it was to the author's mind a very picturesque object. The sacristy of the cathedral was a spacious apartment in the Renaissance style, while the Sala Capitular was more beautiful and refined. The latter was in the form of an ellipse, the ceiling, pavement, and walls being decorated in the most splendid style. Through the instrumentality of the Institute Travelling Card, Mr. Prentice obtained permission to measure the great screens around the high altar. After the cathedral, the Alcazar was the next building of importance, and he had spent several weeks making sections and plans of its beautiful details. It was a large Moorish building, somewhat later in date than the Alhambra, and, though smaller, equally fine. The entrance gateway was magnificent, and there was greater variety of wall tiles than at Granada, of which he had taken full-size rubbings. Much of the original colouring remained, in spite of the cruel whitewashing to which the building was subjected in 1813. Another palace in Seville in a semi-Moorish style was the Casa Pilatos. It had a large *patio* or courtyard some 50 ft. square, the walls of which were covered with tiles to the height of 10 ft. The Casa Ayuntamiento was a very fine specimen of the Plateresque style, and worthy of mention. Although familiar with the appearance of the Alhambra from photographs and books, any one entering its courts for the first time could not but be carried away by the novel surroundings, and interest was at once awakened as a new-found treasure. After Seville he, at first, had the idea that the Alhambra was a blaze of colour; but, with a few exceptions of decoration, the delicate traceries and walls were of a creamy and white colour. If the Alhambra had ceased to charm the architect at home, from the many vulgar attempts at its reproduction, still any one with a soul for the artistic could not fail to appreciate the wonderful grace of form in the proportion of the arches and openings. A careful study of any of its parts was a useful lesson to the student: the Hall of Ambassadors, for instance, the entire surface of which was a mass of decoration, although it did not appear in the least degree overdone; this effect, he thought, was gained by the variety of the ornament and the mode of placing a large pattern next to a small and intricate one. The advantage of beginning at the floor level with a delicate arabesque, and increasing in boldness as it ascends, also became apparent. Under Italian influence the still unfinished Renaissance Palace of Charles V. had been begun in 1526,—a building unique in Spain both for its style and plan. Built in close proximity to the Alhambra, Spaniards seemed to have taken a dislike to its formal style, and had evidently preferred to imitate their own buildings, their sympathies laying more with the Moorish work. Having drawn attention to the many points of similarity between the Moorish and Renaissance work,—notably in the increasing boldness of the arabesques the further they receded from the eye, and in the mode of lighting,—Mr. Prentice went on to say that he considered a careful study of the plans of Moorish buildings of great value and interest. Nothing was haphazard. The doors and halls were arranged on a central axis producing charming vistas, while, no matter what size the houses were, they all had courtyards, varying from 6 ft. square, as on the Torre Captiva, to the large Court of the Lions, 116 ft. by 66 ft. During a stay at Cordova Mr. Prentice made a study of the entrance to the Holy of Holies in the Mosque,—a most impressive piece of decoration. Besides the Mosque, many instructive lessons might be gained by an exploration of the town. His first impressions on arriving at Toledo were disappointing. Coming from the South, where the houses and streets were bright with colour, Toledo looked grey and cold; on returning after a journey in the north his impressions were completely reversed. The town contained many specimens of the Early Renaissance work. The popular idea that Spain was the country *par excellence* of the grotesque in Renaissance architecture he was well aware of, and he knew few countries where the spirit of *abandon* was so completely displayed. But when the Renaissance in Spain was analysed, it was found that it was divided into three distinct periods: the Plateresque; the Græco-Roman or Estelo de Herrera (so-called from the name of the architect who chiefly practised it); and the Roccoco or Churrigueresque. The principal buildings in Toledo described by Mr. Prentice, were the Hospital of the Holy Cross, the Alcazar, and the cathedral, which contained numerous iron screens of the Renaissance period. The study of such screens he had followed up at the Cathedral of Cirenca, where the finest collection in Spain was to be found, and where the interior was a perfect mine of Renaissance detail in stone, wood, iron, and rich jasper. Madrid possessed few ancient buildings of note, but several modern buildings had sprung up of late, constructed on the most approved fireproof principles, such as the Bank of Spain, a large new railway station, and buildings connected with the municipality. Salamanaca, after Seville, was the most interesting city in Spain, and might justly be called the home of the Renaissance. In the cathedrals of Spain the choir was situated in the nave, but in a number of smaller churches, and especially in conventual buildings, it was placed at the extreme west end. The journey to Leon and Santiago de Compostella should not be missed; the latter place had a distinct character of its own, nearly all the houses being of granite, and the streets being lined with arcades. From Burgos he had brought several sketches of the local Renaissance, and the cathedral at Siguenza,—a city not often visited,—contained many gems of Plateresque work. Owing to the absence of stone in the locality of Saragossa, most of the houses were built of flat bricks, crowned with wooden cornices. Of the many monastic buildings in Spain, the Benedictine Monastery of Poblet, now in ruins, was the most interesting and extensive after the Escurial. From Barcelona Mr. Prentice proceeded to Palma in Majorca, where subjects for sketching were innumerable, from the large cathedral down to the door-plates of the houses. His object, while in Spain, had been to study and sketch as much of the architectural remains as time permitted, as he was conscious that the past was being trampled out of the country, and that many ancient buildings were rapidly disappearing.

The President, in inviting discussion, said it was always pleasant to have fresh impressions, even of old friends, as many of the buildings referred to by Mr. Prentice were.

Mr. R. Phené Spiers, in proposing a vote of thanks to Mr. Prentice, said he had not been to Spain himself, but he had been the cause of many students going there, and among them was Mr. Prentice himself. It was sometimes difficult to get people to understand that work of the *Francois Premier* period in France and in Spain was quite as fine and as interesting as that of the Cinque Cento period in Italy—in fact, that of the Cinque Cento period in Italy was more or less confined to the magnificent sculptures on tombs. It was only in France that they found buildings of a picturesque aspect of that period. In towns of north Italy (where he was travelling last year), he was painfully conscious of the absence of that picturesqueness of design which one sees in almost every French town. The fact was, the soil of France and Spain (he meant by the soil the style of the Flamboyant work in both countries) was eminently suitable for assisting and carrying forward the works of the early Renaissance, by adapting the picturesque design found in the Flamboyant work of both countries. The work in Spain was not, perhaps, quite of that exquisite finish which was noticeable in France, but it was, he thought, undoubtedly more vigorous. He was glad that Mr. Prentice had undertaken the journey to Spain, and although it was a little further than France, he hoped that the paper which had been read would induce other students to go there. A journey there would be of great benefit to students, and would introduce to their notice features and decorations, as well as beautiful metal work, which would be of the greatest assistance to those who were endeavouring to evolve a new style. In conclusion, he wished to congratulate Mr. Prentice on the beautiful drawings which he had exhibited.

Mr. Henry Dawson said he had very great pleasure in seconding the vote of thanks. In

reference to what Mr. Prentice had said about the absence of colour in the Alhambra, he thought the absence of colouring chiefly referred to the Court of the Lions. When the other courts were visited, such as the Ambassadors' and the beautiful room which led to the Queen's Boudoir, they were found to abound in colour. There was also the mosque of the Alhambra, which abounded in colour. He had been hoping that Mr. Prentice would have said more about the beautiful mosque at Cordova. The study of that magnificent specimen of a mosque, which was something like three hundred years earlier than that at Granada, would well reward any student. Its remarkably picturesque columns were the contributions of almost all the countries of the world, from Constantinople to France, Spain, and Rome. The country of Spain afforded admirable ground for anyone who was enthusiastic and could bring home drawings of the treasures found there.

Mr. Thomas Blashill said he had travelled beyond the extreme north of Spain, and his general impression of the Gothic work which he saw there was fully borne out by the drawings exhibited. The characteristics of what he saw in the north of Spain were an excessive amount of ornament; very elaborate detail, exceedingly heavy, rich, and full of imagination, and he thought this was different from what one saw in France and Italy. One's education could not be considered complete until a visit was paid to Spain and more of its work seen; but he was afraid that before their young students could get there, there would have to be a little more organisation of travel. He thought it would be of interest to them to hear from Mr. Prentice how he travelled about. The means of travelling in Spain were very crude, and unless they had a purseful of money, they were likely to get on very badly.

Mr. Alexander Payne said he should like to call attention to Mr. Heber Rimmer's drawings which were exhibited. They were some of the finest drawings which they had ever seen in that room.

The President, in putting the vote of thanks to the meeting, said the drawings to which Mr. Payne had referred were certainly very beautiful, and well worthy of their study.

The vote of thanks was then put and carried unanimously.

Mr. Prentice, in the course of a brief reply, said that Mr. Rimmer accompanied him during part of his journey in Spain, and many of his drawings were made in his (the speaker's) company. They each sketched different subjects.

The President announced that the next meeting of the Institute would be held on the 16th inst., when he would deliver a short address to architectural students, and Mr. William Emerson, the Honorary Secretary, would make some critical remarks on the students' drawings. The prizes would also be awarded to the successful students, and the subscription portrait of Mr. Alfred Waterhouse, R.A., would be presented to the Institute.

The meeting then terminated.

MAGAZINES AND REVIEWS.

THE *Gazette des Beaux-Arts* continues the articles on "La Propagande de la Renaissance dans l'Orient," by M. Eugene Müntz. This second article of the series deals with Russia, and adds some characteristic illustrations of Russian developments of Renaissance detail; a window in a Moscow Palace, with colonnettes on corbels, set in the middle of a wall carved with a great coarse "nail-head" ornament; the Cathedral of the Assumption in the same city, evidently suggested by St. Mark's Venice; the portal of the Cathedral of the Annunciation (Moscow again), a curious example of ornament which is Renaissance in detail, but used with a profusion quite oriental in character; and (to contrast with this) the plain bald pilaster and arch architecture of one of the courtyards of the Kremlin. M. Mazerolle contributes an article on the retrospective art exhibition at Madrid, and M. Louis Gonse a review of Michel's new biography of Rembrandt. The number is hardly up to its usual interest.

The *Art Journal* devotes an article to the work of Mr. Burne-Jones, somewhat universally enthusiastic, and illustrated, not only from the artist's pictures but from his sketches and studies. An article on "Bardini's at Florence" contains some very interesting illustrations of Renaissance tapestry, as well as other objects. "Round about Coate" consist of a description and some charming sketches of scenes connected with the life and work of Richard Jefferies.

The most interesting article in the *Magazine of Art* is Mr. Walter Crane's on the aspect and the adaptation of objects; the old question of nature and conventionality, but treated with new point, in the illustrations at all events. The sketches of the oak and the daisy in their aspect, and the same treated decoratively, are excellent examples. Mr. Claude Phillips contributes an article on "Current Art;" Mr. Wedmore one on Mr. H. G. Hine and his art; Mr. Theodore Watts concludes his article on "Portraits of Tennyson;" a short article on Mr. Burne-Jones introduces among the illustrations a profile study of the head of M. Paderewski, which has more than one kind of interest.

Mind contains the second part of an important article on "The Field of Æsthetics Psychologically Considered," by Mr. H. K. Marshall.

There could hardly be a more flagrant example of the principle on which some modern magazines are conducted than the fact that in the *Nineteenth Century* Lord Grimthorpe appears "by request," as the reviewer of "Architecture, A Profession or an Art?" The old system, in the good old days of anonymous writing, was to select a writer to treat a subject because he understood it; the present system is to select a person whose name, whether he knows anything of the subject or not, will attract the mass of the public. The editor of the *Nineteenth Century* is (or was) an architect; if he knows anything of his business he must know that Lord Grimthorpe is a perfectly incompetent person to treat such a subject, and that no one who understands it cares a straw for his opinion; but then his name, like Mr. Shaw Lefevre's, is known to the general public, and therefore architecture is handed over to critics of this class, as attractive to a public who only want to be amused and not to learn anything about architecture. This sort of thing is supposed to sell a magazine; and whether it is true or not is of no consequence. It is needless to add that Lord Grimthorpe's article is one long advertisement of himself, interspersed with sneers at all the architects of both factions. There is one remark in his article, however, with which we can cordially agree, viz.: in regard to his own work at St. Alban's:—"No observer of the least experience or natural eye for differences could mistake for five minutes any of that work for original in any Gothic style that ever flourished." (!) Certainly that is true; even more true than Lord Grimthorpe is aware of.

The *Fortnightly Review* contains an article by an architectural writer of a very different stamp, Mr. H. P. Horne, one of those who is content to know his subject without bragging about his knowledge. His subject is a review of Mr. Symonds's admirable book on Michelangelo. In the course of it Mr. Horne goes into a very interesting criticism on Symonds's criticism on Michelangelo's architecture, the Laurentian Library especially, which he defends with some justice from Mr. Symonds's rather damaging criticism. A passage as to the Sistine ceiling we may quote, as showing it in a new light:

"Imagination, composition, form, in the highest and grandest representation possible to the human mind, I had expected to find in these frescoes before I visited Rome; but I had not looked for the colouring of the design to be equal to these in beauty and originality. Alone in Italian art, wholly different from those arrangements of colour which characterise the earlier Florentine, the Venetian, the Roman, the Neapolitan schools; these frescoes present a splendid and solemn scheme of clear sad hues, of greys, russets, tawnies, chaste greens and purples; only the blues, the management of which was ever the test of a great colourist, stand out with distinction, and give force and value to the whole work."

The theory that Michelangelo was a great draughtsman but "no colourist" has been so commonly repeated, that it is interesting to find an independent writer who sees him rather differently.

In *Scribner* there is an interesting paper by F. Crowninshield on "Impressions of a Decorator in Rome." The writer makes a plea for Roman decorative art as not receiving the recognition it deserves. He comments on the craving of the Italian decorator for plaster work, admitting however that the Italian at any rate makes good plaster—"slakes his lime and preserves it in pits, where it lies for an indefinite period in store." In regard to mosaic work he remarks—

"The old mosaicists work (worked?) on the wall from the cartoon which they designed themselves. There can be no doubt that this method, when possible, is the best, not only for mosaics, but for all mural decoration. At the world-famed mosaic factory of the Vatican I was informed that this direct method would be too costly and lengthy; a statement one cannot gainsay without personal experience. It is likely enough that for equal quantities of work executed in the shop and on the wall, respectively, a greater expense would be incurred for the latter; but I hold that much less work would be necessary were the work attached directly, under the personal superintendence of the artist. Superfluous labour would be at once apparent, and therefore eliminated."

He adds that in the case of Mr. Burne-Jones's mosaics in the American church in Rome a great deal of useless labour has been expended in getting gradations of tint in skies, &c., the effect of which is entirely lost in execution.

In the *Century* there is an article on the Great Wall of China, by Mr. Romyn Hitchcock, with some good illustrations. Also the story of Millet's early life, told by his younger brother François Millet, and an article on "Illustrations of Dickens," with special reference to Hablot Browne.

Blackwood's Magazine contains a good and thoughtful paper on "Ornament," by Mr. Herbert Maxwell, who says very truly that "ornament is to form what music is to sound." The writer speaks strongly and in the main with truth in regard to the abuse of gilding, instancing especially the unhappy idea of entirely gilding the central figure of the Albert Memorial. In his strictures on the designing of decorative frames for pictures, by which he holds that the frame is pushed into undue prominence, we can hardly agree with him. It is surely an advantage that the frame and the picture should appear as one whole, designed by the same mind and hand.

The *English Illustrated* includes an article by Sir Henry Wood on the now rather well-worn subject of the buildings for the Chicago Exhibition, which, here as elsewhere, are made rather too much of. The same number contains an article by Miss (?) Honor Brooke on "Burne-Jones and his Art," with illustrations from his works.

Macmillan contains an article on Bewick, and the *Gentleman's Magazine* one on "Old Church Steeples," by Mrs. Wilson.

In *Temple Bar* is an article on "Gower-Street and its Recollections," which has the air of being taken, in regard to facts, from Mr. Wheatley's book on London, unless he is the author of it. The same number contains an article on Samuel Palmer and his works, summing up with the conclusion that Palmer "conveyed the sentiment and spiritual beauty immanent in a landscape in a way which has seldom been excelled," which is not more than the truth.

The *Antiquary* includes an article of more architectural interest than usual, by Mr. J. Bilson, on "Norman Work in the Nave Triforium of Beverley Minster"; one on "Some Monuments in Selby Abbey Church"; and one by Mr. St. John Hope on "Excavations in Silchester in 1892."

SANITARY INSPECTORS' ASSOCIATION.

ON Saturday last, Dr. B. W. Richardson, President of this Association, delivered his annual address to the members at Carpenters' Hall, London Wall. In congratulating the Association upon an eventful year in its annals, he said that the vigour of the meetings had been well sustained from first to last, the year's work being crowned by an address which was in its way a model sanitary paper, delivered by Mr. Hutton, the Chairman of the London County Council. The Association had paid an interesting visit to Paris, and an important sum of money, 3,500*l.*, had been granted under the Berridge Trust, which had relieved the Association from embarrassment on account of smallness of income. With regard to future progress, their principal efforts should be in the direction of securing greater freedom and independence in the performance of their duties. The Medical Officers of Health had obtained that independence and permanency which the Sanitary Inspectors must attain to, not that the Medical Officer of Health was yet in his proper position. In place of being the servant of the Sanitary Authority, he ought to be, as in America, the Chairman of the Health Department of his Board. When that levelling up took place, the Sanitary Inspector would find his proper place—would attain a proper professional position—and his office would be more respected and consolidated. The reports of the medical officers in America had the status and authority of State documents, and they ought to attain an equally dignified position in our own country. The principal means to be employed for obtaining that object was the inauguration of a complete system of professional education, and by the exaction from all who desired to enter their ranks, of examinational tests appropriate and adequate for the tasks they had to execute. One of the most important points to which they should devote their attention was the establishment of a technical school in which chemistry, physiology, engineering, and the other subjects which it was necessary for an efficient inspector to know could be taught not only to

their own members but to others, who would be glad to join the classes and to pay for them. A good deal had been said recently of examinations and examining boards, and they had seen rival schemes multiplying around them. An impression seemed to prevail that the Association was not strong enough to stand alone in such matters and that they would find their advantage in co-operating with some other bodies for certain purposes. Any examining board for inspectors ought to be absolutely independent and above the suspicion of desiring to profit by fees paid for examinations. His advice was that they should act for themselves and not be trammelled by connexion with other bodies. He would recommend the Association to appeal to the Government to appoint an independent body of examiners, paid by the State. The medical profession had made an attempt in that direction and had nearly succeeded. If the Association was properly represented in Parliament, it could not fail to succeed, for the request was entirely reasonable. Above all it was necessary to be self-reliant and united. Why should they be desirous of joining any other body, or of putting themselves under the wing of any other body? Wings would fly away and the prey would drop. With regard to general progress in sanitary science he feared it had not been great. The lecturer did not appear to entertain a high opinion of the value of the studies and researches of the bacteriologists. What they wanted was greater encouragement to personal cleanliness and greater facilities for securing personal purity, purity of clothing and domestic surroundings. Then, and then only, would the terrible death bill, due to preventible diseases, be materially reduced. An illustration of practical progress was afforded by the establishment of the museum of sanitary appliances at Hornsey to which the association had paid a recent visit. There, any person proposing to build would be able to find out how he could do it in the best and most scientific manner. To establish such museums and to help in the spread of museums of the kind throughout the country would be a proper object for the association to take up, and by doing that they might render most valuable service. He would recommend them to form an advisory committee to assist the various localities in organising similar exhibitions of sanitary appliances.

After the reading of the paper a vote of thanks was proposed, on which Mr. Tidman, C.E., Mr. H. Alexander (Shoreditch), Mr. C. W. Legg (Hackney), Mr. Middlewick, Mr. West (Walthamstow), Mr. Fairchild (Clapham), Mr. Dee (Westminster), Mr. Bell (Epping), Mr. Goodwin (Richmond), Mr. Grist (Southwark), and other members addressed the meeting. Most of the speakers cordially welcomed the suggestions made by Dr. Richardson, particularly with regard to the questions of examinations and the founding of a school. Mr. Fairchild thought that it would not be very difficult to obtain for South London, perhaps at the Albert Palace, such a museum as North London had obtained; Mr. Bell thought that not much could be done on the higher lines suggested until the inadequacy of the salaries paid to inspectors, particularly in rural districts, was remedied; and Mr. Goodwin, of Richmond, complained of the precarious tenure by which many urban inspectors held their offices. He cited cases in which inspectors had been discharged and censured for doing their manifest duty, one of the cases of hardship arising out of a condemnation of property belonging to the Crown itself.—The vote of thanks was cordially acclaimed, and the President briefly acknowledged the compliment.

Illustrations.

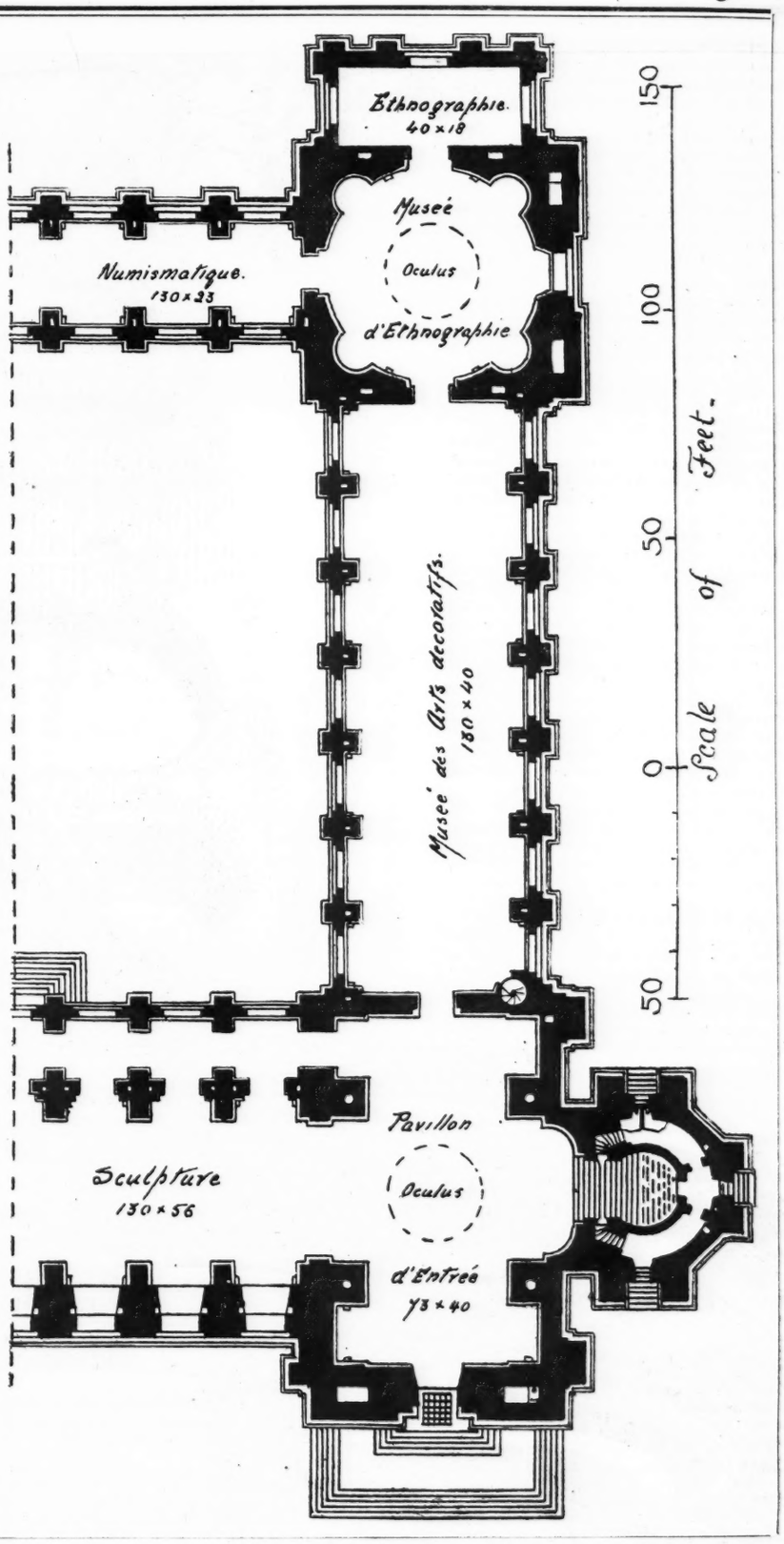
FINE ARTS MUSEUM, LILLE.

IN this issue we give a representation of the Palais des Beaux-Arts at Lille, along with a half plan scheme of the general arrangement of the buildings.

The style of the building is not uncommon in western Flanders, and the choice of this design, out of the quantity submitted in the national competition in 1884, is an indication that the feeling for architectural form is more local than patriotic, or the Flemish Rennaissance would have been rejected for something thoroughly French or Parisian.

It is an architecture that at first repels a stranger but which rapidly grows into esteem on acquaintance. Seen in broad sunlight, and seen in the half-light of night or early morning, this building does not appear the same. In the half-lights, from across the wide open space in front, it looks exceedingly fine, but in the hard light of mid-day the heavy massing of sculptured detail and great salience of cornice and column are seen with such breaks in light and shade that the eye refuses to grasp the building as a whole, but is caught by the individual portions which oppose continuity of breadth by the extent of their relief.

On the contrary, the lateral elevations are pleasing and effective in the daylight, but of no architectural effect seen in subdued light.

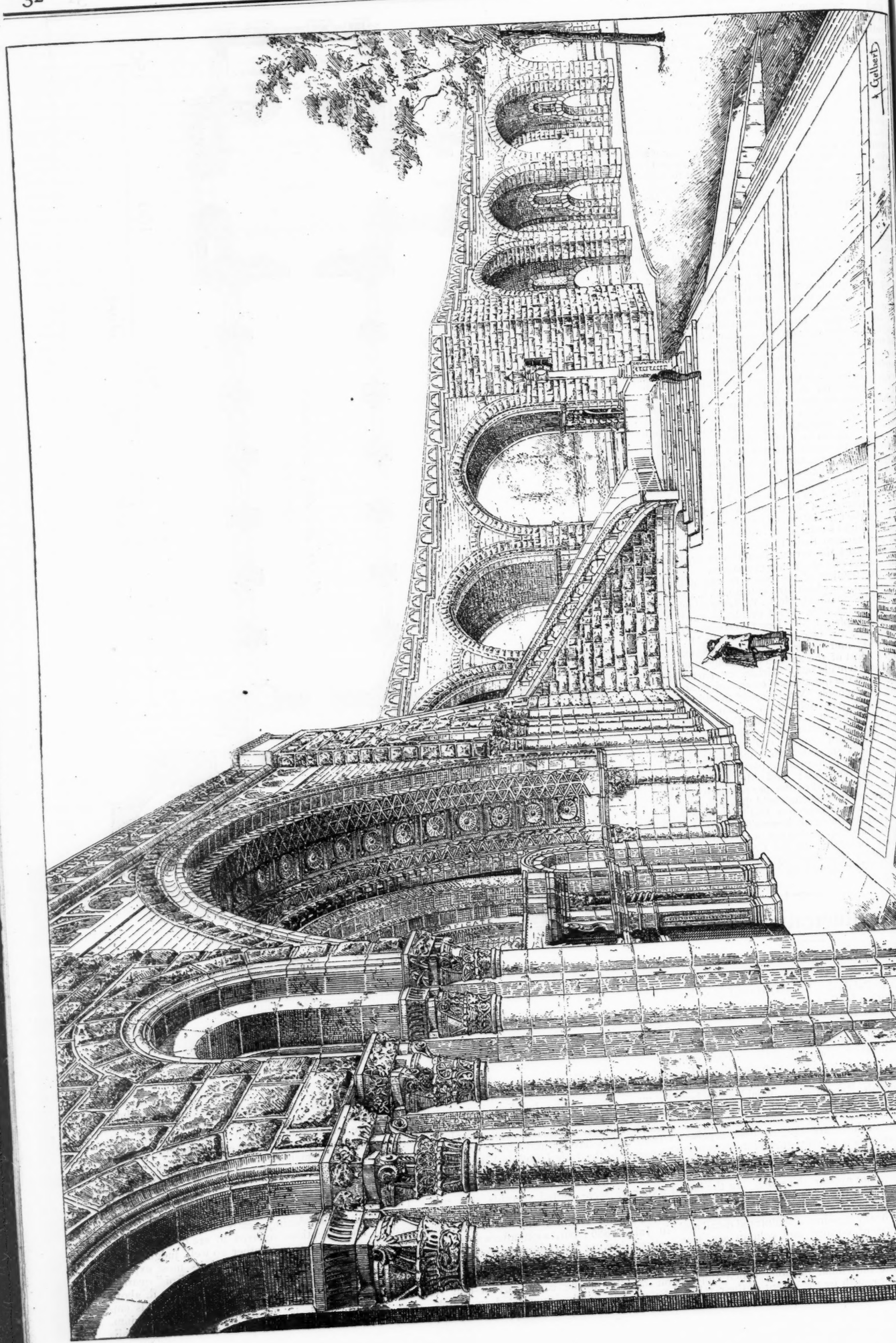


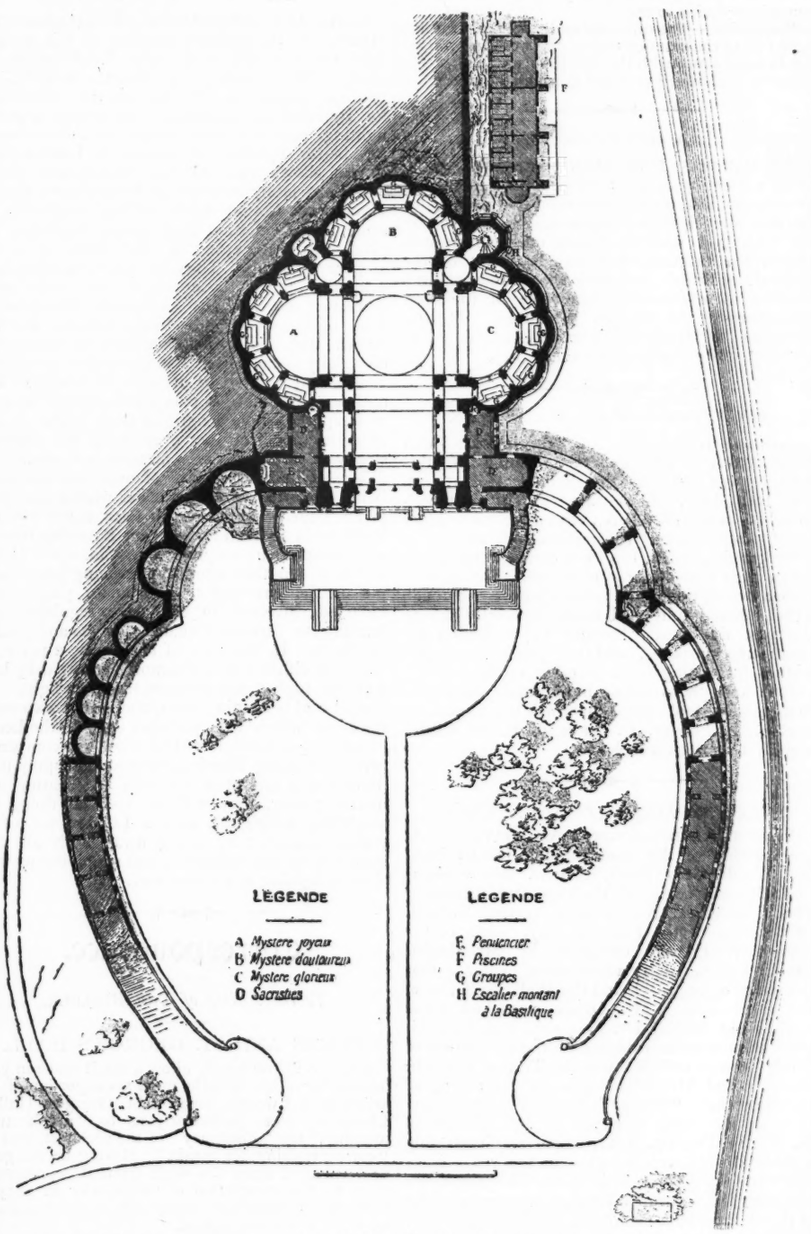
The object of the building is to receive the valuable collection of paintings by old masters for which Lille is considered second only to Paris. These works have hitherto been preserved in the museum of the Lille Hôtel de Ville.

To start the enterprise, the Government, previous to the competition, sanctioned a lottery; 108,000*l.* were netted towards the cost. The designs accepted were those of M. Berard and M. Fernand Delmas, and the work commenced in July, 1886; but, soon afterwards, M. Berard retired, leaving M. Delmas to complete the building. The chief assisting architect was Mr. Arthur Pye-Parmintier, an Englishman. Pushed on rapidly in the early part of that year, the *Palais* was finally inaugurated in March, 1892. But as it stands, to all appearances completely finished, it represents only one-half the extent of the entire museum, which is designed to be duplicated, symmetrically, on what is now the rear—a large ornamental garden surrounded by high-decorated railings. This extension will then give the space demanded for so large a collection.

Except the entablature and string course the building is of *Savonnière*, or soap-stone, coming from the *Savonnière* quarries on the Meuse, near the Belgian frontier. It carves well, and has the quality of hardening greatly under exposure.

The exceptions referred to are of a stone that does not appear to weather so well, judging from the discolouration already of its most exposed portions. It comes from the "Reffroi" quarries in the same neighbourhood. Up to 4 ft. above ground level a hard blue stone, tooled, is employed. This is *Soignies* stone from Belgium. The whole foundation is on massive brick walls


A. Gilbert



Proposed Church at Lourdes.—Plan of Church, showing approaches to existing Church.

and piers. The ground floor is composed of vaulted halls, which are striking from the extreme whiteness of the stone, particularly of the roof, which is relieved from monotony by projecting bands traversing its width and hipped from the side windows and decorated with sculptured knots down the whole length of the centre line. The flooring is of coloured mosaic.

The ground floor gallery between the two entrances, 130 + 56 ft., is lighted on either side, and contains the sculpture. At either end is a lofty entrance lobby or pavilion, each one approached by a staircase from the fronting garden. A well-hole 20 ft. diameter in the centre of the vaulting shows clear through to a lantern in the roof of the first floor. The two octagonal flanking towers, at either side of the lobbies, contain the staircases, with a straight flight to the first landing and doubling around the radius to the head; treads of a dark hard stone. At a somewhat higher level are the windows, with stained glass emblems of the sciences and trades. The painted-glass work was done at Gaudin's (Paris) studios under the direction of the architect. Surmounting the well, the dome, of iron frame work filled in with brick and plastered, is highly decorated with enamel mosaic work of a blue ground with architectural designs thereon supporting escutcheons bearing the names of celebrated painters. The apex of the dome is of blue enamel mosaic with silver stars, and separated from the vaulting sides by an interval. Coignet, of Paris, executed this work at about 150*l.* per panel.

Following the plan of the ground floor, the first story galleries are of an unusual height. The ceiling of the salon d'honneur is a true half-circle, panneled and ornamented at the centre by deep circular recesses, tinted blue in imitation of roof openings. The principal colour is terra-cotta, but mauve is also employed. This room is 130 × 40 ft. by 52 ft. high, and is lighted by the three lofty central façade windows. The moulding decorations are simple, but striking from their breadth of treatment.

Sketch studies, of all varying sizes, in charcoal and water-colour, are shown on the walls and in oak cases.

At either end are two lofty pavilions, approached by the staircases just referred to. They are 73 × 40 ft. The roof is vaulted in two directions and above all is a circular lantern placed directly over the floor well. This latter is surrounded by a balustrade around which the oak-flooring is slightly raised.

The copings of the balustrades are upholstered with plush, and the whole appears to be designed as a comfortable lounging place for visitors.

The lateral galleries are, as with the remainder on the first story, devoted to the paintings, which are chiefly of the Flemish school. These rooms are lighted entirely by horizontal windows deriving their illumination from the lights in the high-pitched outside roof, the result being more subdued than with the same arrangement at the Louvre. A very handsome appearance has been obtained in the cornice line with its full hollow sweep from the wall to the edge of the lights. At the ends of the lateral galleries are two secondary pavilions, the ceilings of which are of a deeper pitch than those of the façade pavilions. The gallery connecting them will form the transverse axis of the building when fully built. The flooring is in oak.

The ground-floor lateral-halls are variously devoted to architecture, Mediæval house and church furniture and highly wrought decorative objects, and tapestries, ceramic ware, remains from the stone and bronze ages, &c. The end pavilions and the rear corridor connecting them (130 × 23 ft.) contain relics of the middle ages and curiosities from the French colonies: arms, armour, saddles, boats, geographical instruments, tapestries, pottery, and household furnitures. An extensive basement-floor, well-lighted, follows the ground-floor plan and will be devoted to archæology and heavy stone work, as at the Louvre.

Iron has been used in the roof construction, as also for the ceilings of the first floor.

The heating is by hot water, the boilers for which are situated across the boulevard, some three hundred yards distant, and connected by means of supply and return pipes in an underground passage. The hot water circulates in 400 vertical and horizontal air-heating stoves placed in groups and from which the warm air ascends through conduits in the walls to the various parts of the building. The cost of the heating arrangements was 6,500*l.*

The façade is heavy in its sculptured detail, which, if it be criticised, is bold and somewhat too pronounced. Under the two large window frontons it is entirely floral; but under the voussoirs of the other three (Louis XVI. style) a childish figure is introduced besides. The bas-reliefs over the principal entrances, of flying figures representing the arts, trades, and sciences, are, however, much less protrusive. A local peculiarity of building is the abnormal height of doorways with an exceptional narrowness. The diminutive side-doors of the museum bear this trait, but they are again minimised in appearance by the very large keystones with sculptured faces thereon. On the lateral walls beneath the frieze is a row of panels sculptured with the busts of the most celebrated artists of past days.

There are nine large niches on the façade, and four at the sides, to fill with statues. These are in hand, and will cost 10,000*l.* The designer of the models was M. Jules Martin, of Paris, working under the direction of the architect.

A high gilded railing, 1,600 ft. in length and costing 6,000*l.*, encloses the museum and its garden. The portico gates are of wrought-iron with bronze escutcheons.

The principal contractor was M. Weber; stonework and mouldings by Marty; interior stuff and plaster work by Deschins; all the joinery was by Rouzé, of Lille; Robillard (Paris) supplied and fixed the general ironwork; roofing was by Roumens (Paris); and heating arrangements by Anceau, Paris.

The cost of the building, as far as now finished, has been 170,000*l.*

NEW CHURCH AT LOURDES.

THE engraving showing the porch of this church, to which we referred last week in a Note, is reproduced from the pages of *L'Architecture* by the kind permission of the editor. The bridge roadway leads up to the existing church, the new one being below the rock, which is to be cut away for it.

CARTOON FOR A DRAPED FIGURE.

THIS is a reproduction from the life-size cartoon by Mr. Lawrence E. Koe, which recently gained the Royal Academy's prize for "A Cartoon for a Draped Figure," and which was far away the best work of those sent in. The subject given was "Mary Magdalene at the Sepulchre."

DESIGN FOR STUDIO HOUSE.

THE principal feature of this house is a large central room or studio, the nature of which makes it suitable for a variety of purposes, and does not allow it to impinge upon the accommodation of the house. It will be seen that the space saved by varying the ground floor level is utilised in providing space for a billiard-table supported upon a tram and running into the centre of the studio on cannon-balls beneath the floor. A stage can be formed readily by opening the sliding-doors into dining-room.

The architect is Mr. M. Maberly Smith, and the drawing was exhibited at the Royal Academy of 1892.

MISSION HOSPITAL, JERUSALEM.

THIS hospital is about to be erected for the London Society for Promoting Christianity amongst the Jews, upon a site on the Jaffa-road, about one mile from the city walls. It is planned upon the Pavilion principle, with detached blocks for every department. The central block, which divides the wards of the hospital into two groups, for males on the right and females on the left, consists of a hall for visitors, or for use as a day-room. With the operating and doctors' and store rooms adjoining, open verandahs connect each ward with this central block. In the front to the right and left are the outpatients' and dispensing block, with residence over, and, on the left, the kitchen departments and nurses' dwelling, with bedrooms above. The laundry block and a mortuary are detached buildings in the grounds. The joinery and fittings, as well as the constructional ironwork, will be prepared in England, the walls will be of local stone quarried on the site, and the roofs also will be of arched stonework carried on girders. The architect is Mr. Beresford Pite, and the drawing was hung in last year's Royal Academy exhibition.

TECHNICAL SCHOOLS, ACCRINGTON.

THE plans for this school, which were selected in competition, were sent in under the name of Messrs. Morley & Woodhouse, but are here given under the name of Mr. W. J. Morley, the partnership being now dissolved.

The general arrangement of the building will be seen from the plans, but we may give some extracts from the report sent in with the drawings, in regard to details :—

"*The Chemical Laboratory* is placed in the quadrangle as suggested, and would have top light as well as side lights; ten benches for four each and two benches for ten each, and fume closets are provided between the windows; distillation and evaporating closets are also shown. Facing Hartmann-street are the balance-room, dyeing-room, research laboratory and master's-room — the research laboratory being closely accessible to the chemical laboratory. Besides the entrance from the front, side entrances are shown to the basement floor, and which would serve also for access to future extensions, the suph. hydro. room opens out of the laboratory.

The Lecture Theatres are placed on the ground-floor along Lister-street, and the level of the floor of these is 5 ft. below the general level of the ground floor, so that after allowing sufficient height for the proper use of the seats, sufficient head room is left under first floor. (See section C D.)

The Preparation Room is placed between the theatres as directed.

The Loom and Machinery Room is also in the quadrangle, and is separated from the chemical laboratory by a corridor; this corridor we propose to roof in with a glass roof (see section A B), and could be fitted up with students' lockers.

Class-rooms.—We show five class-rooms on ground floor, three of the larger being so to throw into one, and three class-rooms on the first floor, thus dividing the accommodation between the two floors; another class-room could be made in the basement if desired. (Marked spare room.)

Heating and Ventilating.—The heating would be on the low pressure system, and would be mainly by coils of pipes or radiators, placed mostly in the window recesses; the fresh air inlets would be behind them, and, consequently, the cold air would pass over the pipes and enter the room warmed; screens and valves would be arranged in the coil casings to regulate the supply and direction of the air.

It would probably be desirable to have two systems side by side from separate boilers—one for the laboratories and shed, lecture theatres, &c.; one for the class-rooms and art-rooms, &c.—both, of course, in the same chamber.

The Ventilation would be by mechanical means. A powerful rotary fan would be fixed at the base of the ventilating-shaft, worked by the gas-engine or steam-engine as the case may be, and with a coil of pipes above it to assist the aspiration. These would convey the vitiated air under the floors and corridors from all the rooms to the ventilating-shaft, the flues being graduated in size proportionately as they traversed in the direction of the final exit; all rooms would have descending flues carried into the horizontal shafts, and all flues also from *fume* closets in chemical laboratory would be taken the same way; thus the whole of the foul air throughout the building would be constantly drawn out and changed. We have successfully carried out this system recently in a large Board school in a neighbouring town, and can, therefore, speak confidently of its efficiency.

It may be desirable to put in one or two top ventilators to the shed and laboratory, which could be used occasionally, when desired.

Power.—As nothing is said as to what kind of power it is proposed to use we provide in basement a room in which either a small steam engine and boiler, or a *gas* engine may be placed, whichever the committee decide to use.

Sanitation.—The drainage and all sanitary fittings would be of the best description and would be carried out in accordance with the Bye-laws and under the approval and direction of the Borough Engineer."

COMPETITIONS.

ST. PANCRAS NEW MUNICIPAL BUILDINGS.—At a meeting of the Vestry of St. Pancras, on Wednesday last, it was announced that designs for the new municipal buildings would be received on the 16th inst., and the Vestry unanimously supported the proposal that the President of the Institute of British Architects should be appointed assessor to advise the Committee in the consideration of the designs submitted. Messrs. Brunsden & Henderson were also appointed to act as quantity surveyors for the Vestry.

ARCHITECTURAL SOCIETIES.

SHEFFIELD SOCIETY OF ARCHITECTS AND SURVEYORS. — The general meeting of this Society was held at the School of Art, on the 10th inst., when Mr. J. B. Mitchell-Withers, jnr., A.R.I.B.A., read a technical paper on "Architectural Illustration by means of Photography." Mr. Innocent presided, and there was a large attendance of members. The lecturer gave a description of the various processes through which photography had been, especially during the past five years, brought to perfection for illustrative purposes, and his paper was made further interesting by a number of fine photographs and photo prints hung round the room. A discussion took place, in which the President, Messrs. F. Fowler, C. Hadfield, E. M. Gibbs, and H. L. Paterson took part.

ARCHÆOLOGICAL SOCIETIES.

BRITISH ARCHÆOLOGICAL ASSOCIATION.—At the meeting of this association on the 4th inst., Mr. W. de Gray Birch, F.S.A., in the chair, some Roman coins of Hadrian and Antoninus Pius, found near Newbrough, Northumberland, on the line of the Military Way, south of the Roman Wall, were exhibited by Mr. Loftus Brock, F.S.A. They afford some evidence that the roads of approach and the Wall itself are of the same date. Mr. Oliver described some curious old MSS.; Dr. Fairbank, F.S.A., exhibited an admirable rubbing of the fine Brass of Lord Camoys and his wife in Trotton Church, Sussex; and Mr. Oliver gave a description of various other "Garter" brasses. The Rev. Cave-Browne read a paper on the Church of St. Martin, Detling, Kent, where two interesting sepulchral slabs were found some few years since, and carefully preserved by him. The staple for receiving the point of a lance, formerly deposited in the chancel by a member of the Detling family, has been uncovered, in the roof, and also the iron crook to receive its foot. Drawings of the well-known lectern were exhibited. It is, however, most likely a music-stand of foreign workmanship. Mr. Park Harrison, M.A., exhibited a copy of one page of the MS. Life of St. Cuthbert, by the Venerable Bede, now in Corpus Christi College, Cambridge. It represents King Aegfrith and St. Cuthbert standing beside a church, and it is surrounded with a border of foliage of remarkable character; the date is about 950, but the foliage is similar to work of the thirteenth century. Part of an elaborate paper on the Old Traders' Signs in Little Britain, by Mr. H. Syer Cuming, F.S.A.Scot., was then read. In that street were assembled a great many of the early booksellers and publishers. The signs were very numerous and peculiar, and they date from an early period in the sixteenth century until well into the eighteenth, when the locality was abandoned by the booksellers. Additional interest was given to the list of the signs, by notices of many of the most curious of the books issued from the shops named. The lateness of the hour caused the remainder of the paper, on the signs in Duck-lane, adjoining, to be deferred.

ROYAL ARCHÆOLOGICAL INSTITUTE.—The *Athenæum* announces that Mr. Hartshorne and Mr. Hellier Gosselin have resigned their respective official positions in connexion with this Institute.

UNIVERSITY COLLEGE, LIVERPOOL.—Evening penny lectures on technical subjects are to be given at this institution; on Engineering, by Professor Hele-Shaw; on Architectural Brickwork, by Mr. T. Taliessen Rees, A.R.I.B.A.; and on Sanitary Plumbing, by Mr. R. J. Angel, A.R.I.B.A.

ENGINEERING SOCIETIES.

CIVIL AND MECHANICAL ENGINEERS' SOCIETY.—At the ordinary meeting of this society, held on the 5th inst., the President in the chair, Mr. Sidney à Court, A.M.I.C.E., read a paper on "Gas *versus* Electricity for Illuminating purposes." Speaking of public lighting, attention was drawn to the necessity for better lighting of streets in London, and it was shown that the new high-power public gas-lamps lately adopted in Westminster and at Hyde Park Corner, while costing practically the same for installation and annual expenses, yet give only one-tenth of the light of a ten ampere arc-lamp. Thus for street-lighting it is evidently much cheaper to use arc-lamps wherever we require a good illumination. For lighting our dwelling-houses it was shown that, with the exception of cheapness, electricity is far better than gas either as regards health and comfort or absence of danger. The author stated that gas companies cannot manage to keep the whole length of their mains at one pressure, nor can they even keep the pressure steady at any point, and mention was made of a difference in gas pressure of over 100 per cent. being recorded in Westminster within the space of an hour. Referring to tests made by Dr. Wallace in 1880 on an ordinary Batswing burner, with gas pressure varying from ·5 in. up to 1½ in., it was shown that when the evening pressure is put on the gas mains, unfortunate people who have not invested in expensive regulators are burning an increased quantity of gas and getting less light. In the case of electricity, 2 per cent. variation either way is the most permitted by law, and the higher the pressure the more light. As cannel coal is running short, the author expressed the hope (which will, perhaps, echo in the hearts of fog-ridden Londoners) that when gas companies give up making illuminating gas and supply non-illuminating gas at a low rate for heating and motive power, they will, at last, be doing the one thing which can cure a London fog of its yellow character by doing away with all coal smoke from our chimneys, and supplying us with electric lighting at a cheap rate.

Correspondence.

To the Editor of THE BUILDER.

ELMES AND ST. GEORGE'S HALL.

SIR,—Will you kindly allow a small space in your journal for a few remarks upon some portion of the article in last week's issue on St. George's Hall at Liverpool, more particularly as to "architectural morality," the "obstinacy" of the architect, and his "caring nothing for music." Having been a good deal engaged upon this work from its commencement to the completion of the interior in 1854, I have the circumstances pretty well in mind, assisted by many notes and reports.

My first acquaintance with Mr. Elmes was in 1841 as a student at the Royal Academy, and afterwards when he used to come to the office of the late Professor Cockerell. On one occasion it was to ask Mr. Cockerell how he had his models made; Mr. Cockerell's reply was "If you talk to John Goodchild in the next room, he will put you in the way of having it done." I undertook the matter for him and had a model of the great hall made with one of the courts at the end, together about 12 ft. in length. After this I was in frequent communication with him till he went to Jamaica, where he died in 1847. Mr. Elmes was passionately fond of music, and an excellent violinist. Sir Robert Rawlinson could speak more on this point,—I only heard Mr. Elmes once on his favourite instrument. In his first design for the hall chosen by the St. George's Hall Company, the acoustic effect, permanent orchestra, &c., had been carefully considered and provided for, but through the subsequent arrangements of the corporation committee, the St. George's Hall Company and the Philharmonic Society, this part of the scheme was entirely altered. After the competition for the hall came another for the Assize Courts when Mr. Elmes was again the successful competitor. The hall was intended to occupy the north end of the site between St. John's Churchyard and Lime-street, facing south; and the Assize Courts, the west side of the land, back to the churchyard and facing east. The width of the ground was too narrow for the hall without its being partially overlapped by the end of the Courts, and, knowing that the company could be dealt with, Mr. Elmes proposed to unite the two in one design; this was suggested in a sketch plan and so far approved that the corporation offered to take over the company's project and carry out their intentions in the same building with the Assize Courts. This having been arranged, Mr. Elmes was instructed to prepare the plans accordingly. At the same time, however, the Philharmonic Society started their great hall for the performance

of oratorios and other music, thus supplying what the St. George's Hall Company had proposed. The Corporation, however, determined to carry out their united plans, to provide an organ for popular concerts for the people composed chiefly of organ performances, and to treat the great hall as a "Westminster Hall" in connexion with the law courts and for public meeting; thus the permanent orchestra dropped out of the programme altogether, and no such organ as that now existing was thought of until a deputation visited the 1851 International Exhibition, where they saw Mr. Willis's great organ, and, by the advice of Dr. Wesley, this was ultimately chosen, and under his hands it grew to its present dimensions. Two of the recesses at the side of the hall had been considered sufficient for the organ, but having grown so large there was no place for it but at the end of the hall. Dr. Wesley and the organ-builder insisted upon its being placed with the organist's seat upon the floor of the hall, and with the largest metal pipes in front. Mr. Cockerell, who then had the works in hand, objected to this, and it was found when put up in full-sized model that these large pipes, 28 inches in diameter—and taller than the columns each side of the hall—so injuriously interfered with the architecture, and the solid organ itself prevented all direct access to the Nisi Prius Court, that Mr. Cockerell proposed putting the large pipes out of sight and bringing forward these of less diameter, placing the organist upon a platform or gallery under which sufficient space could be had for access to the court; the gallery could be made to accommodate some twenty people as a small chorus, and would also serve as a platform for speakers at public meetings. I well remember when this plan was put before the committee, the remark was made "we do not intend to have a chorus in the hall; that will be sufficiently provided for in the concert-room above" (this room was an addition by Mr. Elmes), but the necessity for a platform at public meetings carried the point, and the gallery was determined upon. Several designs were submitted for this work by Mr. Cockerell which are still in existence, and I attended him at every meeting of the committee except one, after this matter was decided. It will be seen, I think, that Mr. Elmes' memory may be spared these strictures, and that everything he did was in perfect agreement with the wish of the committee. A temporary orchestra was erected in front of the organ for the musical part of the ceremony of opening the hall in 1854, in the mayoralty of Mr. John Buck Lloyd; this was immediately afterwards taken down and the popular organ recitals were carried on for some sixteen years before the present orchestra was put up, completely covering the marble and brass work of the stairs, the sculptured supports of the organ, the polished columns of the gallery, the brass gates of the court, and other ornamental work. The wooden floor was made in sections, so as to be easily shipped and unshipped, but we should be glad to see it and the orchestra both taken away entirely. I may say that Mr. Cockerell entered upon the work of finishing the hall and concert-room under some disadvantage. His first inquiry was for Mr. Elmes' drawings, the Corporation having paid Mrs. Elmes 400*l.* for drawings prepared by her husband for finishing the works, but they were not to be found, and I have a note from the gentleman then in charge of the works, in which he says, "All Mr. Elmes' drawings disappeared some years ago." I believe they have since turned up, and are now in the Corporation offices.

J. E. GOODCHILD.

*** We were not aware that any previous design of entirely different type had been made by Elmes for the Hall. If Mr. Goodchild or any one else knows anything of the drawings for this "acoustic" St. George's Hall, it would be interesting to know something about the design. In the meantime, our "moral" is merely shifted from one shoulder to another. Some one, whether Elmes or the Corporation, did not know their own minds, and built a room in which an orchestra is now put up which spoils the architecture, while the room itself is entirely unfitted for music. In regard to the organ, at any rate, it appears to us that Elmes knew there was to be one, and entirely ignored any provision for it, whether architectural or acoustic. We distinctly remember reading a published letter of Elmes's, in which he spoke with contempt of the subject of the organ, and used the phrase "Do you think I am making my hall as a case for the organ?" We cannot turn to the letter at present, but our memory is clear about that sentence, and it shows what was Elmes's attitude in regard to the musical use of St. George's Hall.—ED.

CONCRETE FLOORS.

SIR,—Your article on "Concrete Floors" in the *Builder* of December 17 is very interesting and important, and the data and formulæ given will be found very valuable. No doubt, as you say, "architects have been chary about using concrete for want of data as to strength," &c., and such articles as yours will supply the want; but I think this neither the only reason nor the chief reason for the non-use of concrete floors. If it was it might almost be dismissed at once in ordinary cases; concrete, if well and properly made, being so enormously strong one would always err on the right side in the matter of strength.

The chief drawback has been *cost*, and one important way to meet this is, as you point out, to adopt an arched section for the floor, thus reducing the amount of iron used to the minimum, iron being the principal factor in the matter of cost.

I am glad to find Mr. Colson's experiments confirm my own experience, that the arched section is as strong as the flat, and only about half the dead weight, and it uses less iron.

By *groining* the ends of each bay of my floors I have practically tested Mr. Caws's method, and I believe it materially strengthens the floor. There is no difficulty in doing this, and, in the case of dwelling-houses and more important buildings, besides the additional strength, it improves the appearance of the ceiling, enabling you to have a straight line for your cornice all round the room. I have executed such floors in concrete, the bays having spans of 7 ft. and a length of 15 ft., without the slightest sign of failure.

I certainly endorse Col. Seddon's conclusion that the aggregate for concrete floors should not consist of much, if any, sand. Brick or tile is the best aggregate, broken rather *finer* than for concrete in other positions.

With reference to the skimming coat for ceiling falling off, I would point out that this only happens if the concrete and skimming coat are composed of different materials, such as Portland cement and gauged lime, or Parian cement. I do not quite follow Mr. Caws's mode of treating the ceilings, but presume he is only referring to warehouse buildings, where the under surface of concrete is sufficient for the finished ceiling; but this would not answer in more important buildings.

I hope the day is fast approaching when concrete upper floors will be universal. There is nothing to prevent their use in all classes of houses, the cost now being, in new buildings, very little in excess, if any, of a wood floor of first-rate construction, while the advantages are undeniable.

You refer to the great disadvantage of concrete in large slabs or spans as the liability to give way suddenly under excessive loads, but this danger applies only to buildings of the warehouse class, and not to residential buildings, when, the strength of concrete being so great, the excessive load is almost an impossibility, and the advantages of being fire and vermin proof are so important.

J. H. MARTINDALE.

LOW SIDE WINDOWS.

SIR,—Some years ago, in a conversation I had with the late Mr. Matthew Bloxam, of Rugby, he told me that the so-called Leper Windows were in reality "Confessional Windows." They were used by the Regulars—Dominicans and Franciscans, who interfered greatly with the Seculars, and heard confessions through them. Mr. Bloxham found a document of the Reformation period ordering them to be walled up, and describing them as confessional windows. They are very common in the Midland counties, and there is one on the south side of the chancel in the old church of this North Yorkshire parish.

J. C. FOWLER.

Whorlton Vicarage, January 11th, 1892.

A POINT IN ARBITRATIONS.

SIR,—May I be permitted to explain a point to which you have drawn attention in your flattering notice of my "Arbitrators' Manual" in your impression of the 7th inst. regarding the costs of a reference? When I said that "in ordinary cases, unless there appears to be reason to throw the costs upon one side or the other, it is better to say that each party shall bear his own costs of the reference, and pay half the costs of the award," I had in my mind the very simple cases of the construction of a contract, where very little expense is incurred, and neither party would be really in fault. I did not mean the larger proportion of cases in which one party is compelled by the obstinacy and conduct of another party to enforce payment of an account, and where arbitration is chosen as the proper mode of determining the liability of the parties. Undoubtedly I agree with you that the general rule is that the successful party shall obtain his costs from the other side. The principle of an arbitration is that the arbitrator has discretion as to the costs, and if he finds that one party is in the wrong, and has compelled the other to go to any expenses, the losing party should pay the expenses.

T. SEYMOUR SALAMAN.

*** We are obliged to hold over two or three letters for want of space.

ANONYMOUS LETTERS.—That particular class of idiots (or worse) who think it amusing to write anonymous letters may as well be informed that their efforts in this direction are futile. It is the invariable practice of the editor of this journal, unless where handwriting and address are known to him, to look at the signature of a letter *before* he reads it; and if there is no signature, or an obviously "bogus" one, the letter is thrown into the waste-paper basket without being read. Practitioners in this art are therefore, as far as we are concerned, merely wasting their own time, paper, and postage stamps.

The Student's Column.

CHEMISTRY.—II.

THE method used for the manufacture of oxygen on a large scale for commercial purposes by the Brins' Oxygen Company of Westminster has been described by Mr. Murray in a paper read before the Institute of Mechanical Engineers. It is obtained from the atmosphere by means of barium oxide (BaO), which is a mineral closely resembling lime in its properties. When this substance is subjected to a low red heat and a current of purified air it absorbs the atmospheric oxygen forming barium dioxide (BaO_2) while the nitrogen of the air passes on unchanged, thus—

$$BaO + O = BaO_2 \quad \left(\begin{matrix}\text{from}\\ \text{air}\end{matrix}\right)$$

When the BaO has been treated with a sufficient quantity of air to convert it into BaO_2, the air supply is cut off and the vertical steel tube or retort containing the dioxide is connected with a suction pump. The same degree of heat being still maintained, pure oxygen is obtained from the dioxide as soon as a vacuum of 26-in. of mercury is obtained, and is stored in suitable gas-holders. The gas drawn off before this vacuum is reached has to be blown away, as it is impure on account of the air left in the retorts.

The reaction may be expressed thus—

$$BaO_2 = BaO + O$$

or if it is desired to show that *free* oxygen is obtained, the molecular equation should be adopted, thus—

$$2BaO_2 = 2BaO + O_2$$

for it must be remembered that a molecule is the *smallest* quantity of an element capable of existing in a free state.

When all the BaO_2 has thus been reconverted into the monoxide, BaO, the pump is disconnected, a current of purified air again passed over the heated material and the whole process is repeated indefinitely. The gas prepared by this process, however, never contains more than 97 to 98 per cent. of pure oxygen.

Oxygen is also obtained on a large scale from the atmosphere by the Parkinson's Condensed Gas Company, by alternately passing purified and dried compressed air and steam over heated potassium or sodium manganate mixed with about 15 per cent. of China clay or similar inert matter in order to bring the manganate into a more porous condition for the atmospheric oxygen to act upon. It is claimed that the gas collected by this process contains 98 to 100 per cent. of pure oxygen.

Oxygen is a great supporter of life and combustion, but is not itself inflammable. All substances that will burn in air burn with increased brilliancy in oxygen, and many substances, such as fine iron-wire that will not burn in air, burn with great brilliancy in oxygen.

It is through the presence of oxygen in the air that we are able to live, for nitrogen which forms most of the remaining four-fifths of the volume of the air is not a supporter of life or combustion, but acts merely as a diluent. The oxygen we breathe is converted by the carbonaceous compounds in the blood into carbonic acid, and as such, is respired into the air in conjunction with water vapour. This conversion of atmospheric oxygen into carbonic acid in the act of respiration is common to all animals. On the other hand, the green colouring matter called "chlorophyll" existing in the leaves of plants and trees, under the influence of sunlight absorbs carbonic acid from the atmosphere and decomposes it. The plants retain the constituent carbon for their own nourishment, and the oxygen gas is returned once more into the atmosphere in a free state. Sufficient proof, surely, of the necessity of preserving as much vegetation in our towns as possible. As, however, it is found that in the dark chlorophyll exercises, in a slight degree, a reverse action, plants should be excluded at night from the sleeping rooms.

Ozone O_3.

Ozone is an allotropic form or modification of oxygen. It contains no element other than oxygen, and two volumes of ozone may easily be decomposed into three volumes of ordinary oxygen. It may therefore be regarded as oxygen in a condensed form. Ozone is a colourless gas, but has a peculiar characteristic odour. It is produced when a series of electrical discharges are made in oxygen or air, and is therefore formed in the air during thunderstorms and during the working of ordinary electrical machines. If a piece of white blotting paper is soaked in a solu-

tion of starch and potassium iodide, and then exposed to ozone, the paper is dyed a blue colour owing to the liberation of iodine from the potassium iodide, the iodine forming a blue compound with starch.

Ozone oxidises with great rapidity all substances that oxygen will act upon, and will also oxidise many substances that ordinary oxygen does not affect. It is therefore a powerful disinfectant, but like so many other disinfectants it acts as a powerful poison if not very largely diluted. Ozone is said to be often present in small quantities in the air of the open country, and especially along the sea coast. The odour, however, usually taken by Londoners at the seaside for ozone most frequently proceeds from decomposing sea-weed and shell-fish, and is sometimes the reverse of wholesome.

Experiments—Group I.

1. Prove that the expired breath contains carbonic acid.

This may be done by blowing through a glass tube into some clear lime water, when, if carbonic acid be present in the breath, a white, flaky precipitate will be formed. This precipitate is due to the chemical combination of the calcium oxide in the lime water with the carbon dioxide in the carbonic acid of the breath, forming *insoluble* carbonate of calcium, or, as it is often called, carbonate of lime.

$$CO_2 + CaO = CaCO_3$$
(carbon dioxide) (calcium oxide)

If it is desired to show the full reaction, the equation must be written thus:—

$$H_2CO_3 + CaH_2O_2 = CaCO_3 + 2H_2O$$

In the last equation, it should be noted that we have merely added the elements of water, thus $CO_2 + H_2O = H_2CO_3$ or carbonic acid, and $CaO + H_2O = CaH_2O_2$ calcium hydrate.

2. Prepare oxygen gas.

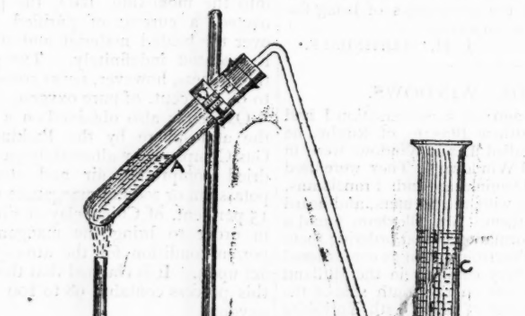


FIG. 1

A = test-tube. B = Bunsen gas burner. C = small gas jar (inverted). D = bee-hive shelf.

Fit a large test-tube with a cork and delivery tube as shown in Fig. 1. Glass tubing may easily be bent to any desired shape by rotating the part at which the bend is to be made over an ordinary luminous gas flame until the glass becomes soft. When thoroughly softened it should be removed from the flame and immediately out slowly bent into the desired form. After heating, the glass should be allowed to cool slowly. The soot which is deposited on the tube may be completely wiped off when the glass is cold.

Partly fill the dry test-tube with powdered potassium chlorate well mixed with about one-fifth of its weight of manganese dioxide. Fit the cork and delivery tube in position, placing the lower end of the latter under water in a basin or pneumatic trough. If a common basin is made to do duty for a pneumatic trough a bee-hive shelf as shown in Fig. 1 (D) will be found almost indispensable. Gently heat the mixture in the test-tube and allow the bubbles of gas which rise through the water to escape until it is judged that all the air has been expelled from the test-tube, then allow the oxygen gas which is being evolved to pass under a small gas jar filled with water and inverted, by the aid of a glass plate held over the mouth of the jar, in the basin of water without allowing any of the water to escape. The bubbles of gas will rise through the water and gradually displace the water in the jar.

As soon as one jar is filled with the gas, remove it without allowing any of the gas to escape, by means of a glass plate held over the mouth of the jar, and in its place put another inverted gas jar filled with water. In this manner collect several jars of the gas.

3. Observe and test the properties of oxygen.

Note that oxygen is colourless and odourless, and ascertain try whether it is inflammable.

Prove that it is an energetic supporter of combustion, by holding a glowing splinter in the gas and observing the brilliancy with which it immediately bursts into flame.

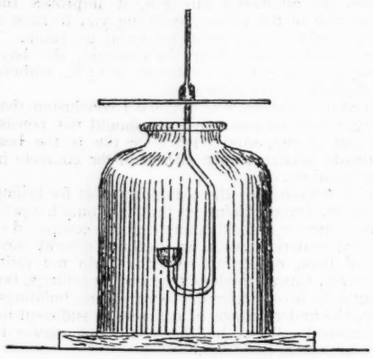


FIG. 2

Heat a few pieces of charcoal over a gas flame in a deflagrating spoon (Fig. 2) until they glow, then plunge them into the gas and observe the brilliant light emitted by the burning charcoal.

Observe also the brilliancy with which ignited sulphur, iron wire tipped with burning sulphur, or phosphorus will burn in oxygen.

Prove that when charcoal burns in oxygen, carbon dioxide is produced, by pouring some clear lime water into the jar in which the charcoal was burnt and obtaining a white insoluble precipitate of carbonate of lime.

$$CaH_2O_2 + CO_2 = CaCO_3 + H_2O$$

Symbol H. Hydrogen. Atomic Weight, 1.

Hydrogen is the only gas which has not yet been liquefied. Several years ago some celebrated chemists claimed to have liquefied it, but this has since been shown to be a mistake. The gases are liquefied by the combined effect of intense cold and great pressure, but until some method is found for obtaining a greater degree of cold than can at present be obtained, hydrogen cannot be liquefied. Many of the elementary gases have not only been liquefied but also solidified.

Under ordinary conditions hydrogen is a colourless and odourless gas. It is the lightest element known and its atomic weight is therefore taken as unit.

Hydrogen is not a supporter of life or combustion, but is inflammable. When ignited in air or oxygen it combines with the oxygen to form water (H_2O) and burns with a blue non-luminous flame of intense heat.

If, before ignition, hydrogen is mixed with air or oxygen, in certain proportions, it forms an explosive mixture. In a state of combination, hydrogen is a constituent of most substances used for producing light and heat, such for instance as coal and oil. Hydrogen was formerly used for filling balloons but is now superseded by coal gas for this purpose, partly because coal gas is much cheaper than hydrogen and partly because hydrogen diffuses through the material of which the balloon is made much faster than coal gas. On account of this latter fact, a balloon filled with coal gas will remain in the air much longer than a balloon filled with hydrogen, although of course it will not ascend to so great an altitude.

Diffusion of Gases.

If a jar of hydrogen gas is inverted over a jar of oxygen gas, it is found that notwithstanding the fact that hydrogen is sixteen times lighter than oxygen, yet it will not remain by itself in the upper jar, but will gradually diffuse into the lower jar, and become intermingled with the oxygen. Similarly the oxygen will gradually ascend into the hydrogen jar, until a point is reached at which the density of the mixture is the same in every part of each jar. At this point the proportion of each gas in each jar will remain constant. It is found, however, that the oxygen does not ascend into the hydrogen so quickly as the hydrogen descends into the oxygen. It is found, in fact, that the rate of diffusion of a gas is regulated by its density, and Graham, by numerous experiments, has established the law that "the velocity of diffusion of different gases is inversely proportional to the square root of their densities." Now the density of oxygen is 16, and the square root of 16 is 4; hence if the jars of oxygen and hydrogen be separated by a porous diaphragm, the hydrogen will pass through it into the oxygen four times as quickly as the oxygen will pass into the hydrogen, until the pressure in the oxygen jar gets sufficiently high to interfere with the normal rates of diffusion.

This peculiar diffusive power of the gases undoubtedly plays an important part in keeping the composition of the air constant in different parts of the world, although, of course, it is greatly assisted by the wind or air currents produced by inequalities of temperature. If these two diffusive powers did not exist, all the carbonic acid produced by respiration and by the combustion of fuel, being much heavier than either of the chief constituents of the air, would accumulate near the surface of the earth, and consequently put an end to all animal existence.

OBITUARY.

MR. ALFRED NORMAN.—We regret to hear that Mr. Alfred Norman, J.P., formerly Mayor of Devonport, died on the 4th inst. He was for many years in practice as an architect in Plymouth. In 1869 he joined Mr. James Hine, and the firm of Norman and Hine, as it then was, a few years later erected the new Municipal Buildings at Plymouth. The funeral took place in Plymouth Cemetery on the 10th inst.

MR. HENRY BYWATERS.—We regret to hear of the death of Mr. Henry Bywaters, of King-street, Regent-street. He was a member of the well-known building firm of G. H. & A. Bywaters & Sons, and was a prominent teetotaler. He died at No. 3, Golden-square, on the 28th ult., in his seventieth year. The funeral took place at Kensal Green Cemetery on the 7th inst.

GENERAL BUILDING NEWS.

BUILDING IN BIRMINGHAM IN 1892.—Mr. F. W. Lloyd, the City Building Surveyor of Birmingham, has furnished the following return of new buildings, &c., for which plans were approved during the year ending December 31, 1892:—Houses and shops, 1,491; business premises, 22; manufactories, warehouses, and shopping, 199; church, 1; chapels, 2; school, 1; miscellaneous, 230; alterations and additions, 205. These figures, with the exception of those relating to business premises, show a steady increase all round; the dwelling houses and shops being over 500 more than the same item in 1891, and including two additional blocks of artisans' dwellings, built by the Corporation, in Lawrence-street. There is only one church, viz., Church of England, St. Oswald's-road, Small Heath. The chapels are: Friends' Meeting House, St. James's-road and George-road, and a mission chapel, in Kelynge-street. The one school is St. Mary's Roman Catholic, Lonsdale-road, Harborne. Amongst the miscellaneous buildings are Church of England Mission Hall, Park-road, Harborne; New Free Library, Small Heath; Assembly Rooms, Stratford-road; Midland Railway Offices, Suffolk-street; Kyrle Society's Hall, Sheep-street; the Dogs' Home, Fazeley-street; and New Police Offices, Corporation-street. The alterations and additions include:—Additional class rooms and new Cookery and Laundry School, St. Thomas's Church, Bath-row; enlargement of Congregational Chapel, Francis-road; additional chancel, &c., St. Catherine's Roman Catholic Church, Horse Fair; extension of Mason's College, Edmund-street; extension of Volunteer Drill Hall, Thorpe-street; and alterations and

additions to Dental Hospital, Newhall-street. From the above return it would appear that the past year has been one of much activity with all branches of the building trades in the city, especially if the prolonged strike of bricklayers and bricklayers' labourers in the early part of the year is taken into consideration. During the year 935 notices have been forwarded to property owners and others as to dangerous buildings, projecting signs, emblems, &c., and a quantity of land amounting to 144 superficial yards has been conceded to the Corporation by owners of property setting back windows, steps, and other projections. During the same period 275 factories have been examined in accordance with the provisions of the Factory and Workshops Act, 1891, as to the means of egress for the employés in the case of fire. Of these 174 have since been altered, and are now provided with satisfactory means of egress, and the necessary alterations are at present in progress at forty-eight other factories.

NEW POST OFFICE, LIVERPOOL.—According to the Liverpool papers, the plans for the erection of the new General Post Office for Liverpool have now been completed. The site of the new post-office faces several streets, including Victoria-street, Sir Thomas's-buildings, and Stanley-street. It does not yet extend to Whitechapel, but the scheme of the post-office authorities isintended to ultimately secure the whole of the large square bounded by these four streets. The plans prepared by the Government architect show a large square building with a well for light in the centre of 30 ft. by 70 ft. The principal frontage will be to Victoria-street. The building, which will be of stone, will rise from the street to the eaves to a height of about 60 ft., and the style of architecture may be described as approaching French Renaissance. The elevation shows a three-story building, with the basement in the front barely noticeable on the level of the street. The proposal of the architect is to put the sanitary accommodation for the sorters, telegraph boys, &c., under the large well, and to otherwise use the basement for stores, kitchen, engine-house, boiler, &c. In the centre of the building, as it faces Victoria-street, is the office where business across the counter will be conducted. For this purpose a room is provided, measuring 72 ft. by 68 ft. The rest of the ground-floor, practically the three sides of the square, is to be devoted to a sorting office. This department will be 60 ft. wide and 500 ft. in length. Behind the sorting office will be the yard for the vans for the conveyance of letter bags, &c., and it is proposed that these vehicles shall enter from the Stanley-street side and pass out at the Sir Thomas's-building side, the work of unloading and loading being carried on under a glass cover. On the mezzanine floor offices are provided for superintendents, who can enter from these upon an open gallery, and see what is going on in the public office and in the sorting-rooms. On the first-floor it is proposed to place the sorting and delivery rooms for the local postmen. The postmaster's rooms will also be placed on this floor, as well as those for his assistants, clerks, &c. The next floor is almost entirely devoted to telegraphing and telephoning. On the second-floor are also dining-rooms for men and women, lavatories, and other accommodation. On the third-floor provision will be made for the telegraphic and other batteries. It is stated that tenders for the execution of the foundations have already been received, and in a very short time work will be actively commenced.

THEATRE AND OPERA HOUSE, HULL.—The new Grand Theatre and Opera House, erected in George-street, Hull, at a cost of over 20,000*l.*, has just been opened. The new theatre has been built from the designs of Mr. Frank Matcham, of London. The main entrances are from George-street, and, owing to the width of the site, private roadways have been formed on each side of the building, and these have enabled the architect to obtain wide and fireproof exits from all quarters. A feature of the exterior of the building is the stone portico, which not only forms a shelter for the early arrivals, but a balcony, which, entered from the casement windows, will serve as a smoking lounge in the summer. Over the pavement of the principal entry is a glass and iron shelter. The front of the building at night will be illuminated with electric lights in the shelter, together with two arc lamps. The principal entrance is in the centre of the building. The pit is a large one, and has a good slope towards the stage. The auditorium is divided into stalls and pit. The stage is about 50 ft. deep, and nearly 80 ft. in width from wall to wall. The theatre is heated throughout with hot water, and hydrants are provided on each floor for the extinction of fires. Electric light is used for illuminating purposes instead of gas.

RESTORATION OF IPPLEPEN PARISH CHURCH, DEVON.—The parish church of Ipplepen has just been re-opened after undergoing partial restoration. It has been decided to do the work in sections, as funds become available. Messrs. Fulford, Tait, & Harvey, of Exeter, were appointed architects, and their plans were approved at the Vestry meeting held in April, 1891. Tenders were invited for the first section of the work, which is now completed, viz., the removal of the old deal tank-like pews, laying a new floor of concrete foundation, on which is laid, embedded in pitch, a top floor of small wooden blocks. The aisles are laid with tiles, interspersed with original slabs. The walls have been cleaned and newly plastered. The pillars and arcades, which are of red sandstone, have been cleaned and pointed. The nave has been reseated with open pine seats, and a heating chamber has been built; a new vestry has also been supplied. Messrs. Parker Bros., of Newton Abbot, were the builders, under whom Mr. Haydon has supplied the heating apparatus, and Mr. Knight, both of Newton, has carried out the stone carving for the vestry, &c. The rood screen, which is of the fifteenth century, had been sadly despoiled, part having been cut away entirely and the rood destroyed. Mr. Read, of Exeter, has restored the part which was cut away.

PROPOSED NEW THEATRE AT BACUP.—The *Rochdale Observer* reports that plans of a proposed new theatre and opera house in Rochdale-road, submitted by Messrs. Walters & Lowe, have been passed by the Bacup Town Council.

AGRICULTURAL COLLEGE, ASPATRIA, CUMBERLAND.—Extensive additions and alterations are at present in progress at this building. The plans were prepared in May last by Mr. T. Taylor Scott, F.R.I.B.A., of Carlisle, and since then the work has been proceeding. The site is a large open space forming one of the highest parts of the town, with fields at the rear for recreation grounds. Two red houses occupying a portion of the site have been removed, and one extensive wing—T shaped—has been erected, the larger portion being three stories high, and consisting of a large new class room, smoke room, and reading room, boot and store room, &c., lavatories, and bath room, and a number of cubicals, &c., on the first floor, also large dormitory on the second floor. A new dining hall, billiard room, and private rooms are being built at the opposite end of the site, the two new buildings being connected by a corridor. A large tower has been erected in the centre of the main wing forming a portion of the new reception hall, with stained-glass screens at both ends. The work is being carried out under the architect's supervision by Mr. Latimer, joiner, Carlisle; Mr. L. Ferguson, builder and plumber, Workington; Messrs. S. Ferguson & Sons, plasterers, Carlisle; Mr. Gordon, painter and glazier, Maryport; and Mr. J. Walker, slater, Cockermouth.

THE BUILDING TRADE OF DUNDEE DURING 1892.—According to the *Dundee Advertiser*, the year 1892 has been a busy one for masons No important structures have been reared in the city, but in the suburbs a large number of houses have been erected. Operative masons have been in request, and more hands, especially builders, would have found work had they come to the city. Wages for the year have been very good, hewers receiving 8d. and builders 8½d. per hour. There have been no disputes between employers and employed, and therefore operations have been carried on without interruption except during spells of hard and inclement weather. When builders are busy it follows that cognate trades have plenty to do. That has been the case during 1892, and it seems from all appearances that the present satisfactory state of matters will continue for some time.

FOREIGN AND COLONIAL.

FRANCE.—The Société des Artistes Francais has appointed its officers for 1893. M. Bonnat has been unanimously re-elected president, MM. Daumet and Cavalier vice-presidents; MM. de Villefroy, T. C. Garnier, and Lamotte secretaries, M. Boisseau treasurer, and M. Tony Robert-Fleury "rapporteur."——The Municipal Council of Paris have voted the funds necessary for removing the contents of the Art-Museum at Auteuil to the Palais des Arts Libéraux on the Champ-de-Mars.——The forestry museum, projected by M. Alphand, is to be installed in the old "Eaux et Forêts" pavilion of the 1889 exhibition, rebuilt near the lake Daumesnil.——The town of Versailles will be shortly put in communication with St. Germain by a tramway with mechanical traction.——The Department of Public Instruction is about to open a competition among the French glass painters, for the execution of windows for the Cathedral of Orleans, illustrating the principal incidents in the life of Joan of Arc.——A competition has been opened at Troyes for the construction of the Hôtel de Préfecture.——At Corbeil the design sent in by M. Michelin (engineer) of Paris and M. Buscubal (architect) of Jurisy, have been awarded the first premium in the competition for public markets for the town of Corbeil (Seine-et-Oise).—— The associated artists of Marseilles have just opened their fourth exhibition of painting.——The town of Cadenet has opened a subscription for a monument to the young drummer André, who distinguished himself at the battle of Arcole, and whose figure is introduced in the pediment sculpture of the Panthéon. —— The art exhibition at Monaco was opened on the 10th, that at Nice a few days before. The latter includes more than 600 works.——A committee has been formed to raise, at Nogent-sur-Marne, a statue in memory of Watteau, who passed his last years in that town.——The following deaths have occurred in the artistic world: that of M. Henry Steiner, enamel painter (an Englishman by birth); M. Eugène Baudouin, landscape painter, of Montpellier; and M. Louis Mouchot, a portrait painter, who had always declined to exhibit at the Annual Salons, but whose talent was well known to many amateurs.

WORK IN THE COLONIES.—Work in New South Wales, especially in the towns, continues to be scarce. According to a circular issued by the Emigrants' Information Office, Sydney suffers, as usual, most of all from the prevailing depression, and no one without money should go there at the present time unless he has work waiting for him. Between February and October last over 14,000 persons registered themselves as unemployed at the Government Labour Bureau in Sydney; employment was found for about 6,500 of these, mainly in country districts. The late strike at the Broken Hill Silver Mines has thrown large numbers of miners out of employment. With respect to Victoria, over 13,000 persons have registered themselves since last June at the Government Labour Bureau in Melbourne as unemployed. The great bulk of the applicants were labourers, and, among mechanics, carpenters and painters appear to have suffered the most. In South Australia almost the only demand last quarter was for ploughmen, shearers, and general farm and station hands, of whom, however, there was a plentiful local supply. In Queensland the re-introduction of the Pacific Islanders to work on the sugar plantations has given an impetus to sugar growing at Bundaberg and elsewhere, but work generally is slack, and there is no demand for fresh hands. In Western Australia, farm labourers, men in the building trades, navvies, general labourers and miners have been well employed. In Tasmania the mining industry at Zeehan has been much depressed; owing to the bad times the Government has reduced expenditure on public works, and has introduced proposals for increased taxation. In New Zealand, the main feature during the last few months has been the continued demand for public land, which has been taken up for the most part on the perpetual lease system by large numbers of settlers. Cape Colony and Natal offer reduced passages to mechanics, female servants, and others, for whom there is a limited demand in parts. In all the above-mentioned Colonies there is a demand for small capitalists, farmers, fruit-growers, and female servants. As the Brazilian Government are endeavouring to introduce European labourers into some of the tropical provinces of Brazil, it becomes necessary to repeat again most strongly the warnings which have been frequently issued from the Emigrants' Information Office against British emigration to that country. The heat of the climate, the strangeness of food and language, the low rate of wages, and the conditions of life generally, which a British farm hand or mechanic must put up with in Brazil, are such as to make that country quite unsuited to him.

MISCELLANEOUS.

SLATE TRADE IN 1892.—The past year has been the best the quarries have had since 1876, the good demand which we anticipated in our last year's report having continued, and being likely to improve still further, as merchants have been for some time booking largely for future delivery. The make of slates will probably show a diminution, though not so great as in 1891, the returns for that year showing a decrease of over 50,000*l.* in value, and the supply cannot readily be increased owing to the very limited area of good slate rock, and the time and expense required to open new quarries. Only one quarry company was registered last year,—and that the conversion of a private firm into a limited company. A rise in wages has been granted to the men. The new railway rates, if enforced, will prejudicially affect users of slates at a distance from the quarries, so every effort should be made to keep the rates as at present.

PROPERTIES FOR SALE.—At the Mart, on the 17th instant, by an order in Chancery, the lease for an unexpired term of thirty years from June, 1884, at an annual ground rent of 1,300*l.*, of Hengler's Cirque, in Argyll-street. The present premises, having a capacity of 2,500 seats, were reconstructed of iron, cement, and stone, under the superintendence of Mr. C. J. Phipps, architect, in place of the former building. The arena ring measures about 150 ft. by 102 ft.; the extreme height of the house is 57 ft. At the auction in September, 1889, the lease was withdrawn after a highest bid of 5,000*l.*, the reserve price being, it was understood, 10,000*l.*—On February 10 a freehold property, covering 21,100 ft. superficial, lying between Newgate Prison and Warwick-lane, Newgate-street. The sale is made by order of trustees under the late Mr. Alfred Tylor's will, and their co-owners. This property, which has a frontage of 80 ft. to Newgate-street, and extends southwards, behind Cutlers' Hall, to Warwick-square, by a depth of about 250 ft., comprises two large buildings, with their lofty water-tower in the square, two warehouses in Phœnix-court, the three shops, Nos. 3-5, Newgate-street, and the adjoining house, No. 2, being a portion of the premises occupied by Messrs. J. Tylor and Sons, hydraulic and sanitary engineers, brassfounders, and manufacturers of water supply appliances. In a "Note" on July 5, 1884, we adverted to the discovery on this site of a stone vase and four leaden *ossuaria*, and to Mr. Alfred Tylor's remarks thereupon; on March 13, 1886, we described the circumstances under which at that time the only remaining portion of Wren's College of Physicians was exposed to view, standing between

COMPETITIONS, CONTRACTS, AND PUBLIC APPOINTMENTS.

COMPETITIONS.

Nature of Work.	By whom Advertised.	Premiums.	Designs to be delivered.
*Lunatic Asylum, Cheddleton	Staffordshire C. C.	200*l.* 150*l.* & 100*l.*	May 1
*Artisans' Dwellings in Flats	Salford Corporation	50*l.* 40*l.* & 30*l.*	No date

CONTRACTS.

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Paving Channelling, &c.	Darlaston Local Board	J. Cash Joynson	Jan. 17
Sewering, Paving, Flagging, &c.	Keighley Corp.	W. H. Hopkinson	do.
Retorts and Firebricks	Heywood (Lancs.) Crp.	W. Whatmough	do.
Flagging, Draining, &c. (Beatrice-avenue)	Plymouth Corp.	G. D. Bellamy	do.
Large Warehouse, Distillery, Linkwood, Elgin, N.B.	.....	A. & W. Reid	do.
Alterations to Chapel, Waterloo, Ashton-under-Lyne	.....	T. George & Son	do.
Girder Spans	India Office	*Official*	do.
Five Mortar Mills, Water-street	Manchester Corp.	do.	Jan. 18
Steel Work	East Indian Ry. Co.	do.	do.
Ingot Steel and Iron Work, Hanover	Prussian Royal Rails.	do.	do.
Kent Ragstone	East Grinstead Union	do.	do.
*Removal of House Refuse, &c.	Vestry of St. Pancras	do.	do.
Two Semi-detached Cottages, Maison-Dieu, Elgin, N.B.	.....	G. Sutherland	do.
Cottage Residence, Speyview, Aberlour, N.B.	Mr. Forsyth	J. Alcock	do.
Cast-iron Pipes, &c. (55 tons)	Torquay Town Coun.	T. S. Weeks	do.
Mortuary	Southampton Corp.	W. B. G. Bennett	do.
Brick Bridge, Royds-lane, Wortley, Leeds	.....	Borough Engineer	do.
Main Sewers, Paving, &c.	Barnsley Town Coun.	J. H. Taylor	do.
Sewer Work	Sutton (Surrey) L. B.	E. W. Crickmay	Jan. 19
Cast-iron Water Pipes (570 tons)	Bradford Corp.	*Official*	do.
*Press Shop, Derby; Stabling, Buxton	M. R. Co.	do.	do.
Cast-iron Water Pipes	Bradford (Yorks) Corp.	do.	do.
Pipe Sewer, Sherburn	Durham R.S.A.	G. Gregson	Jan. 20
Brick and Pipe Sewers and Conduits	Smethwick Local Bd.	Harris & Harris	do.
Enlarging Schools, Outwood, near Wakefield	Stanley-cum-Wrenthorpe School Board	W. Watson	do.
Enlarging Baths, &c. King's Meadow	Reading Corp.	A. E. Collins	do.
Chapel, New Broughton, Wales	Robt. Williams	.....	Jan. 21
Additions to "Newtonmore Hotel," Kingussie, N.B.	.....	Alex. Mackenzie	do.
Residence, Stotfield, Elgin	.....	A. & W. Reid	do.
Two Powder Magazines, Vaults, &c. Eyeworth Lodge, near Lyndhurst	Schultze Gunpowder Co.	Lemon & Blizzard	Jan. 23
House and Cottage, Cathedral School, Llandaff	.....	Halliday & Anderson	do.
Re-constructing Bridge, Parkinson-street	Blackburn High. Com.	J. B. McCallum	do.
Road Works, Azalea-road, &c.	Blackburn Corp.	do.	do.
Roadmaking, Burlington-road, &c.	West Bromwich Corp.	J. T. Eayrs	do.
Alterations, &c. Town Hall	Luton Town Council	T. Ridyard Roscoe	Jan. 24
*Retaining and Boundary Walls	Sheffield U. Gas. Light Co.	F. W. Stevenson	do.
*Grain Warehouse	Preston Corporation	*Official*	do.
*Sewers	Lewisham Bd. of Wks.	do.	do.
*Mortuary, Streatham High-road	Wandsworth B. of W.	do.	do.
*Coast Guard Station, St. Agnes	Admiralty	do.	do.
*Fire Brigade Station, New Cross	LondonCountyCouncil	do.	do.
*Foundations of Cottage Dwellings, East Greenwich	do.	do.	do.
*Works and Materials	Hampstead Vestry	do.	Jan. 25
Iron Viaduct, Ixelles-lez-Brussels	Belgian State Railways	do.	do.

CONTRACTS—*continued.*

Nature of Work or Materials.	By whom Required.	Architect, Surveyor, or Engineer.	Tenders to be delivered.
Water Supply and Sewerage Works, Lisburn, Ireland	Commissioners	J. Lanyon	Jan. 25
*Fifty Houses, Leeds	North Eastern Railway	W. Bell	do.
*Road Materials	Richmond (Surrey) T.C	E. J. Lovegrove	Jan. 26
*Works and Materials	Chelsea Vestry	T. W. E. Higgens	do.
*Brighton Baths, &c.	Brighton Council	F. J. C. May	do.
*Deep Boring at Waterworks	Horsham Loc. Board	G. Hodgson	do.
*Brick and Pipe Sewers, &c.	Leicester Corporation	E. G. Mawbey	do.
Pipe Sewers, Mosley Common	Tyldesley (Lancs.) Loc. Bd.	T. W. Travers	do.
Sanitary Depot and Fire Brigade Station	Elland Local Board	Horsfall & Williams	do.
Railway Iron Work (38,500 metres), Rodez	Aveyron Prefecture	*Official*	do.
Wrought-iron Joists, Valletta, Malta	Director of Contracts	do.	do.
*Additions to Patent Office	Com. of H. M. Works	do.	Jan. 27
Thirty-three Houses, Stuart-street, Merthyr Tydfil	Stuart Building Club	J. Williams	Jan. 28
Semi-detached Villas, Roads, &c. Bull Bay, Amlwch, N. Wales	Lewis Hughes	R. Grierson	Jan. 29
Offices, Waiting-room, &c. Dundalte	Great Northern Railway Co. of Ireland	W. H. Mills	Jan. 30
Renewal of Underline Bridge, near Dublin	do.	do.	do.
School Buildings, St. George's-road	Millom (Cumberland) School Board	Settle & Farmer	do.
Harbour Works, Cadiz	Cadiz Prov. Deputatn	*Official*	do.
Bridge over the Cairn, Drumpark, Dumfries, N.B.	District Committee	.....	Jan. 31
School Buildings, Little Heath, near Coventry	Foleshill School Board	G. & J. Steane	do.
Master's House, Gwaelodygarth, South Wales	Pentyrch School Bd.	R. Y. Evans	do.
Reservoir Embankment, Eccup	Leeds Corporation	T. Hewson	do.
Police Station, Otterburn	Northumberland C. C.	J. Cresswell	Feb. 4
Sewerage at Workhouse, &c.	St. Alban's Union	T. F. Woodman	Feb. 6
Levelling, Draining, &c. Burial Ground	Kibworth (Leicester) Burial Board	Keites & Fosbrooke	do.
*Intermediate School, &c. Merthyr Tydfil	The Committee	*Official*	Feb. 7
Infirmary	Burnley Union	S. Keighley	Feb. 8
*Extension of Works, Accrington	Messrs. Howard & Bullough, Lim.	H. Ross	No date
*Additions and Alterations to Workhouse	Whitechapel Union	Bruce J. Capell	do.
Club Premises, Burton-on-Trent	Liberal Club	Brown & Gordon	do.
Public Library	Colchester Corp.	B. Binyon	do.
Six Houses, Roundhay-road, Leeds	.....	D. Dodgson	do.
Roadmaking, Thornyhedge Estate, Gunnersbury	.....	F. T. W. Miller	do.
Stabling, &c. "Oddfellows' Hall Inn," Stanningley, Leeds	.....	J. Jackson	do.
Excavating, Brickwork, &c. for Two Houses, Royal Park Estate, Leeds	.....	A. Hargrave	do.
Residence, Worsbro', near Barnsley	Rev. J. Newman	G. A. Wilson	do.
*Erection of Schools	Tottenham Sch. Bd.	G. E. T. Laurence	do.

PUBLIC APPOINTMENTS.

Nature of Appointment.	By whom Advertised.	Salary.	Applications to be in.
Clerk of Works, Holyhead	Standing Joint Com.	.....	Jan. 18
*Surveyor's Assistant	Burnley Corporation	130*l.*	do.
*Surveyor and Draughtsman	Eccles Corporation	2*l.* 2s. weekly	do.
*Inspector of Nuisances	Carlisle Corporation	125*l.* &c.	Jan. 19
*Clerk of Works	South Shields Sch. Bd.	2*l.* 10s. weekly	Jan. 20
*Manager of Sewerage Works	Teddington Loc. Bd.	2*l.* weekly, &c.	Jan. 23
Pipe Inspector	Wednesbury Corp.	2*l.* 2s. per week	do.
*Assistant Inspector of Highways	Brighton Council	40s. weekly	No date

Those marked with an Asterisk (*) are advertised in this number. Competitions, p. iv. *Contracts, pp.* iv., vi., *and* viii. *Public Appointments, p.* xx. *and* xxi.

Messrs. Tylor and Sons' show-room and big foundry. Phœnix-court commemorates a tavern by that name which the writer of a history of the Press-yard (London, 1717), a prisoner therein, amongst the Scots rebels of the '15, says was added to the gaol by one of the keepers, for his own aggrandisement, "in the times of usurpation." Warwick, formerly Eldenesse, lane, is named after the Nevills, Earls of Warwick, whose house stood over the site of the present square.

KIRKSTALL ABBEY.—Adverting to our paragraph of December 31, and others, *ante*, we may mention that in the "White" Gallery, British Museum, will be found three views, in water-colour, of the ruins as they appeared ninety years ago. Two of the drawings showing the abbey from its north and south sides (1803) are by P. S. Munn: the other is the work of Gandon (1742—1823).

STEAM CRANES.—Messrs. Grafton & Co., of Vulcan Works, Bedford, have issued a catalogue in which the various descriptions of steam cranes which they manufacture are illustrated and described. The illustrations are taken from photographs of the actual cranes and are very well executed, whilst there is a concise and useful description attached to each. The suggestions to purchasers on the first page should also prove useful to those not experienced in such matters. The majority of the cranes dealt with are of the locomotive type and are self-contained. The fixed steam crane without boiler is a good arrangement for positions where steam can be obtained from main boilers. It is astonishing how often coal is wasted by keeping the separate boiler of a crane under steam when the work is intermittent, the cost of fuel sometimes being simply enormous compared to the load raised; added to which the small vertical boilers of steam cranes are generally, and necessarily, wasteful generators even if the demand be pretty constant. It is a convenient plan, too, to have the foundations mainly above ground in the manner shown in the illustration.

REREDOS, HOLY TRINITY PARISH CHURCH, LIVERPOOL.—The new reredos which has been placed in Holy Trinity Parish Church, Parliament-street, Liverpool, was recently dedicated by the vicar of the parish, the Rev. H. Postance. It is constructed of oak, and is elaborately carved throughout. It is divided into three principal compartments, the centre one being formed into a canopy containing the large gilded oak cross, which stands on a pedestal. Central canopies are also constructed in the wings, on either side, which contain statuettes of angels bearing respectively the Paten and the Chalice. The whole is finished with traceried and carved cornice and cresting. Above the retable on the side wings is inscribed the words, "To the glory of God and in loving memory of James Harrison; erected by his son, Heath Harrison." Tapestry curtains separate the reredos from the surrounding decorations. The work has been carried out by Messrs. Hems & Sons, of Exeter, from the design of the architect, Mr. C. E. Deacon.

IRON AND STEEL STRUCTURES.—Bridge builders have been well employed during the past year, but exports have been restricted, and it is on the continued activity of the home demand that the principal works have had to depend. On all the main lines of railway renewals and widening of bridges are taking place, involving considerable expenditure in foundations and other work at the sites of erection. The growing traffic has rendered necessary also new or enlarged station buildings in London and the principal towns, and much more work of the same kind is needed in the immediate future. Iron and steel are every year taking a more important place in architectural designs, large hotels, theatres, banks, and warehouses being constructed with a metallic framework, which economises space. The low price of steel has encouraged such methods. The mere reduction in weight which steel allows is often valuable, but sometimes the dimensions and sizes of parts usual in iron are adopted and the advantages of steel taken in the greater strength and security so obtained. During the coming year improvement may be looked for in a renewed demand from Australia and South America, many much needed works having been postponed for want of money.—*From Matheson & Grant's Engineering Trades' Report.*

PROPOSED IMPROVEMENTS AT SOUTHPORT.—The Southport Town Council resolved on the 3rd inst. to reject a 15,000*l.* scheme for developing the foreshore, and adopted instead an enlarged scheme estimated to cost 20,000*l.* on the first outlay. The adopted scheme embraces an outer marine drive; the joining of the two marine lakes, to form a fifty-acre sheet of water for boating and bathing; and the lakes to be crossed by a five-span bridge. The new drive will be 24 ft. wide, with a footpath on the sea side, and it is contemplated to add an electric tramway, electricity works being about to be constructed.

EXHIBITION IN BATAVIA.—Next autumn an industrial and agricultural exhibition will be held in Batavia. The exhibits will include architecture, carpentry, mining, steam, gas, and petroleum engines, turbines, electrical apparatus, &c. Intending exhibitors are to apply to M. J. H. de Buosz, Rokin 60, Amsterdam.

PLUMBING.—The Corporation of Halifax have announced their intention not to appoint any plumbers as "Corporation Authorised Plumbers" unless they are upon the register of the Worshipful Company of Plumbers.

REMOVAL.—Mr. G. Shrewsbury, late of 36, Gray's Inn-road, announces his removal to "Calda" Works, Station-road, Camberwell, S.E.

MEETINGS.

FRIDAY, JANUARY 13.

Architectural Association.—Mr. R. Phené Spiers on "The Influence of Byzantine Art in Italy from the Sixth to the Twelfth Century." 7.30 p.m.

Institution of Civil Engineers (Students' Meeting).—Mr. E. Hulme on "The Design and Construction of a Road-way Bridge over the River Cam." 7.30 p.m.

Society of Arts (Howard Lectures).—Professor W. C. Unwin on "The Development and Transmission of Power from Central Stations." I. 8 p.m.

MONDAY, JANUARY 16.

Royal Institute of British Architects.—(1) The President, Mr. J. Macvicar Anderson, will deliver an address to Students; (2) Mr. William Emerson, Honorary Secretary, will offer "Some Critical Remarks on the Students' Work"; (3) Presentation of Prizes; (4) Presentation to the Institute of the subscription portrait of Mr. Alfred Waterhouse, R.A., past President. 8 p.m.

Liverpool Architectural Society.—Professor Mackay on "The Teaching of Architecture in the New University." 6.30 p.m.

TUESDAY, JANUARY 17.

Institution of Civil Engineers.—Discussion on Mr. J. Emerson Dowson's paper on "Gas-Power for Electric Lighting." 8 p.m.

Statistical Society.—Mr. D. F. Schloss on "The Reorganization of Our Labour Department." 7.45 p.m.

WEDNESDAY, JANUARY 18.

British Archæological Association.—(1) Mr. T. Cann Hughes on "The Misereres of Chester Cathedral"; (2) Mr. H. Syer Cuming on "The Old Traders Signs in Duck-lane." 8 p.m.

St. Paul's Ecclesiological Society.—Mr. G. Ambrose Lee on "English Ecclesiastical Heraldry." 7.30 p.m.

Society of Arts.—Mr. B. H. Brough on "The Mining Industries of South Africa." 8 p.m.

Builders' Foremen and Clerks of Works' Institution.—Annual Meeting. 8.30 p.m.

THURSDAY, JANUARY 19.

Institution of Civil Engineers.—Students' visit to the Works of Messrs. Maudslay, Sons, & Field, Westminster Bridge Road, S.E. 2.30 p.m.

Society of Antiquaries.—8.30 p.m.

Dundee Institute of Architecture.—Mr. D. Cunningham on "Harbours, and the Discharging of Vessels." 8 p.m.

FRIDAY, JANUARY 20.

Society of Arts (Howard Lectures).—Professor W. C. Unwin on "The Development and Transmission of Power from Central Stations." II. 8 p.m.

RECENT PATENTS.

ABSTRACTS OF SPECIFICATIONS.

8.—COWLS: *G. F. Harrington.*—This invention consists of further improvements in the cowl and shaft arrangements described in the inventor's previous patents of January 24, 1883, No. 387, and January 30, 1884, No. 2,404. As the oil in which the cowls revolve to trap them with the shafts is liable to become so thick in cold weather as to prevent the cowls revolving, glycerine instead of oil is employed; and instead of making the shafts of wicker-work and cement, and of cement only, they are made of steel or other suitable metal.

1,024.—HEATING BUILDINGS: *J. Evans.*—The object of this invention is to utilise the waste heat in kitchen and other lower rooms for heating the upper rooms, or bedrooms. Hot air chambers are constructed behind or within the kitchen or other ranges or fireplaces, having inlets for fresh air at the bottom, and outlets for the heated air at the top. The hot air is then carried by pipes or other means to the chambers above, and admitted to such chambers preferably by means of hollow skirtings made of metal, or other suitable substance, having valves at intervals to admit into the rooms at the points required. When not required it can be turned outside, or allowed to escape up the ordinary chimney.

14,132.—SAW HANDLES: *W. A. Bramley.*—This invention particularly relates to a detachable handle socket for cross-cut and other like saws, so constructed that it can be instantly attached to or removed from the saw. The socket receiving the wood handle is made somewhat similar in form to those in use, being in sheet steel folded over, and the two sides riveted together with a distance piece between, leaving a space for the entrance of the saw. Through the sides of the socket in the saw-space is made a slot, or hole, and a corresponding hole is made in the end of the saw to receive the end of a removable catch bolt. On one side of the socket is fixed a short lever, supported near the centre upon an axis or pin passing through a bracket, one end of the lever terminates in a catch bolt, which can pass through the slot or opening. Under the opposite end of the lever is a spring, its action being to keep the catch bolt in position. When this end of the lever and spring are depressed the catch bolt is withdrawn and the saw is released.

1,101.—COWLS: *H. L. Hansen and others.*—This invention is designed with the object of preventing the flow or passage of water into or through the ventilating shaft, while at the same time allowing the ingress or egress of a current of air equal to the full capacity of the shaft. Although primarily designed for use on ship-board, it may be applied to shafts for ventilating other structures or buildings. It consists essentially in constructing a trumpet-mouthed cowl, with an upward turn or bend in the shaft above the head of the mouth, and with a ball or other valve and valve seating below, against which the valve is floated, at which point the tube is enlarged, and if a quantity of water enters at the mouth, or be dashed against the ventilator, it prevents the same from entering the vertical shaft or other compartment by the said ball or valve closing the tube.

18,298.—WATER CLOSETS: *M. J. Adams.*—This improvement consists in the form of the pan and trap and closet generally, and in the means employed to effect its cleansing. The bottom of the closet is formed obliquely, with a back nearly straight. The outlet is projected outwards directly from the sloping or oblique bottom of the closet, and it is trumpet-mouthed, thus all matter falling into the pan slides down into the trap. The flush is so directed that it acts freely upon the contents of the trap, driving them outwards. The closet pan and trap can thus be cleansed with about half-a-gallon of water, instead of the usual two gallons now required. As a special flushing arrangement for the closet, or it may be used for any other suitable closet, the inventor prefers to use a flushing rim of metal, or other suitable material, made separate from the pan closet itself, and formed as a perforated or slotted tube. This gives the spray or flush to the closet. This apparatus is attached to the closet by means of a flange, forming a part of the apparatus, and which rests upon the top of the closet pan. To this spray or flushing pipe is attached a nozzle or connexion for the water supply used for flushing.

18,803.—FIREPROOF WALLS, &c.: *R. Alsdorff.*—This patent refers to what is described as a fireproof, self-supporting, and sound-proof wall partition, or ceiling, which, apart from the external framework, consists of a metallic skeleton of rolled beams or bars, and wires or flat irons arranged in a manner analogous to a lattice girder, and of plastic mineral matter cast in, so as to fill up and cover the skeleton. It is claimed that, besides the great economy in space, the walls are thoroughly fireproof, impermeable to sound, very strong, stable, and self-contained. The cross irons used may be made of any suitable strength and shape, according to the thickness of the partition wall required. The thickness of the wall is preferably about 5 centimètres, but may be larger. The plastic mineral material to be cast between the bars consists preferably of ceiling plaster and coal slag or clinkers, or of siliceous sand and plaster of Paris or cement.

NEW APPLICATIONS FOR LETTERS PATENT.

December 19.—23,352, E. Taylor, Electrically Operated Locks.—23,354, T. Holmes and R. Williams, Pipe Joint, &c.—23,359, T. & R. Lees, Circular Moulding Machines for Woodworking.—23,376, T. Ablett, Construction of Fireproof Floors.—23,396, A. Ward, Fitment for Mantelpieces.—23,406, H. Buchan, Sanitary Traps for Baths and Lavatory Basins.

December 20.—23,413, J. Shanks, Water Closets and Water Supply Apparatus for same.—23,416, G. Maxwell, Concrete Construction.—23,439, P. Halliwell and J. Hampson, Apparatus for Drawing Smoke from Chimneys, also for Ventilating Buildings.—23,444, H. German, Herringbone Street or Bridging.—23,445, J. Sutton, Chimney Cowls.—23,474, S. Gruber, Lattice for use in Building Arched Roofs and other Constructions.—23,482, W. Thompson, Hand Braces or Tools for inserting or withdrawing Screws, &c.—23,484, H. Gibbon and W. Tyers, Joining and Coupling Pipes and Tubes.—23,490, L. Sagendooph, Metallic Ceilings and Plates for same.

December 21.—23,541, H. Greenwood, Machinery for Dovetailing in Wood.—23,564, H. Joly, Lattice Truss or Girder.—23,572, S. de Tenanti and J. Noad, Manufacture of White Lead.—23,618, T. Fletcher, Greenhouses and other Horticultural Buildings.

December 22.—23,636, W. Allardice, Fire Grates.—23,638, E. and S. Collier, Roofing Tiles with a Rough Surface.—26,345, G. Pearce, Machinery for Sawing and Boring Timber.

December 23.—23,717, S. Vigers, Expansion Joints for Floors.—23,743, C. Henderson, Sash Fastener.

December 24.—23,771, A. Browne, Bricks, Blocks, Ornaments, Paving, Paving Tiles, Artificial Stone, &c.—23,825, H. Skewes, Combined Moulding, Planing, and Sawing Machines.—23,829, F. Clere, Construction of Window Sashes to Facilitate Cleaning, &c.

December 27.—23,864, J. Adair, Bakers' Ovens.—23,871, A. Rendle, Glazed Structures.—23,884, H. Leggott, Fire Grates.—23,921, E. Morand, Expansion in Water Pipes, to Prevent Bursting by Frost.

December 28.—23,947, W. Brooks, Flushing Apparatus and Water Closets.—23,964, J. Wright, Sash Fasteners.—23,975, W. Horne and F. Ham, Non-Slippery Pavements.

December 29.—23,982, T. Twyford, Water Closets or Water Closet Basins.—24,002, J. Harrison, Sash Fasteners.

December 30.—24,044, D. Gill, Method of Isolating Rooms in Private Houses and other buildings.—24,102, J. Crook, Step Ladders.

December 31.—24,112, J. Preston, Rain Water, Soil, and Waste Pipes, &c.—24,117, J. Parker, Water Closet Seats.

PROVISIONAL SPECIFICATIONS ACCEPTED.

18,627, J. Thorrold and J. Kendrick, Fastening for Door Knobs.—19,469, A. Dixon, Window Fastener.—19,502, C. Horton, Water Closets.—19,589, N. Simmons, Flushing Valve for Water Pipes, Soil Pipes, Sewers, &c.—20,242, T. Bennett, Gauge for use when Cutting Tongued and Grooved Boards, Wooden Mouldings, &c.—20,412, J. Kaye, Kaye's Patent Wedge Locks.—20,742, H. Evans, Waste Water Flushing Closet.—20,743, H. Watson, Smoke Preventing Cowl.—20,767, E. Preston, Siphon Waste Water Preventers.—21,165, E. Peers and F. Jukes, Drain or Sewage Pipes, and in Joints therefor.—21,203, P. Robinson, Girders, Sectioned Metal, &c., in Iron and Steel and other Metals.—21,236, R. Williamson and J. Dyson, Archimedean Screws.—21,417, W. Bradford, Disinfecting Apparatus.—21,465, G. Light, Siphon Drain Traps.—21,492, G. Thornton, Indicators for Doors, &c.—21,510, R. Ecroyd, Substitute for Earthenware Tiles for Domestic Fireplaces, Lavatories, Walls, &c.—21,580, W. Bevitt, Prevention of Down-Draught in Chimneys.—21,583, P. Robinson, Production or Part Production of Girders and other Sectioned Metals and in Machinery to be employed therefor.—21,585, H. Fear, Locks and Latches or Combined Locks and Latches.—21,880, C. Casalonga, Heating Rooms and other Spaces.—21,851, J. Ferguson, Fireproof Building Construction.—21,853, G. Warsop, Hinges for Doors, &c.—21,890, E. Kemp, Wood Turning Lathes.—21,891, F. Allison, Window Sash Fasteners.—21,958, R. Smillie and W. Wallace, Steam and Water Pipes.—22,030, C. Stevens, Device for Securing Doors, French Windows, &c.—22,036, W. and E. Freeman, Water Closets.—22,055, J. Hilton and J. Rostron, Imitation Marble and Granite Slabs or Blocks.—22,098, F. Crane, Paints and Driers.—22,104, H. Mardon, Drying Sheds and Kilns for Bricks, Tiles, &c.—22,169, A. Franklin, Glass Cutting, whereby an ordinary Glazier's Diamond may be employed, for Cutting Glass in circles of any required size.—22,275, W. Youlten, Sliding Windows.—22,381, W. Price, Screws for Joiners' and other use.—22,400, C. Gibbs and C. Couse, Heating Bakers' Ordinary Brick Ovens.—22,541, J. Spencer, Firegrates or Fireplaces.—22,574, J. Noel, Chimney or Ventilator Tops.—22,634, J. Hamblet, Bricks, Tiles, Quarries, and Paving Blocks.—22,679, W. Copping, Sash Windows, hung upon Lines and Pulleys, and Fittings for same.—22,720, J. Challis, Damp Proof Boards for Constructive Work, Roofing, &c.—22,842, A. Thrower, Girders.—22,889, A. Forth and G. Yate, Electrical Fittings.

COMPLETE SPECIFICATIONS ACCEPTED.

(Open to Opposition for Two Months.)

66, H. Simester, Ventilation.—1,973, J. Shubrook and W. Belemore, Firegrates or Stoves.—2,161, A. Kershaw, Ventilators.—2,964, M. Kann, Apparatus for Use in Working Stone.—3,215, C. Pryce, Kilns.—3,302, W. Jones, Water Waste Preventer.—3,465, D. Andrew, Drain Sewer and like Pipes.—3,466, D. Andrew, Appliance to be used in Laying Sewer Drain Pipes, &c., also for Testing the same.—3,671, M. Piper, Door or other Fastenings.—3,778, J. Asten, Clip for Roofing Slates or Tiles.—3,801, L. and W. Winnall, Electric Bells.—16,528, J. Northcoft, Door Bolts.—17,278, J. Kirtley, Generating and Forcing Smoke, &c., through Pipes or Drains for Testing and similar purposes.—21,822, J. Jones and R. Williams, Furniture of Pivoted Window Sashes, part of which is applicable to Sliding Sashes and to Doors.—21,835, W. Ingram, Valves for Cisterns, &c.

PRICES CURRENT OF MATERIALS.

TIMBER.

Greenheart, B.G.	ton	9/0/0 0/0/0
Teak, E.I.	load	9/10/0 15/0/0
Sequoia, U.S.ft.cu.		2/4 3/0
Ash, Canada	load	2/10/0 4/0/0
Birch, do.		3/5/0 4/10/0
Elm, do.		3/10/0 4/15/0
Fir, Dantsic, &c.		1/10/0 3/10/0
Oak, do.		3/0/0 5/5/0
Canada		5/10/0 7/0/0
Pine, Canada red		2/10/0 3/10/0
Do. Yellow		2/10/0 5/0/0
Lath, Dantsic, fath		5/0/0 6/0/0
St. Petersburg		5/0/0 7/0/0
eals, Finland		
2nd & 1st std	100	7/10/0 10/0/0
Do. 4th & 3rd		7/10/0 8/0/0
Do. Riga		6/10/0 8/0/0
St. Petersburg,		
1st yellow		10/10/0 14/10/0
Do. 2nd yellow		8/10/0 9/10/0
Do. white		7/10/0 9/10/0
Swedish		7/10/0 16/0/0
White Sea		8/10/0 17/0/0
Canada, Pine 1st		21/0/0 27/10/0
Do. do. 2nd		15/0/0 17/0/0
Do. do. 3rd &c.		7/10/0 10/0/0
Do. Spruce, 1st		8/10/0 11/0/0
Do. do. 3rd &		
2nd		6/10/0 8/0/0
New Brunswick		6/10/0 7/10/0
Battens, all kinds		3/10/0 15/10/0
Flooring boards,		
sq. 1 in. prep.		
1st		0/8/0 0/14/0
Do. 2nd		0/7/0 0/10/0
Other qualities—		0/3/6 0/7/6
Cedar, Cuba	ft.	3½ 4½
Honduras, &c		3½ 4½
Mahogany, Cuba		4½ 6½
St. Domingo,		
cargo av.		1/4 2/0
Mexican do. do.		1/4 1/5
Tobasco do. do.		1/4½ 1/7
Honduras do.		1/5 1/6½
Box, Turkey	ton	4/0/0 13/0/0
Rose, Rio		10/0/0 20/0/0
Bahia		9/0/0 18/0/0
Satin, St. Domingo	ft.	0/0/6 0/1/3
Porto Rico		0/0/7 0/1/6

TIMBER (*continued*).

Walnut, Italian		0/0/3½ 0/0/7

METALS.

Iron—Pig, in Scotland	ton	2/1/11½ 0/0/0
Bar, Welsh, in London		5/17/6 6/0/0
Do. do. at works in Wales		5.7/6 5/10/0
Do. Staffordshire, in London		6/0/0 6/10/0
COPPER—British, cake and ingot		49/15/0 50/5/0
Best selected		51/0/0 51/5/0
Sheets, strong		59/0/0 0/0/0
Chili, bars		46/2/6 46/10/0
YELLOW METAL	lb	0/0/5½ 0/0/5¾
LEAD—Pig, Spanish	ton	9/16/3 9/17/6
English com. brands		10/0/0 0/0/0
Sheet, English, 6 lbs. per sq. ft. and upwards		11/5/6 0/0/0
Pipe		11/15/0 0/0/0
ZINC—English sheet	ton	22/10/0 0/0/0
Vieille Montagne		23/0/0 0/0/0
TIN—Straits		90/17/6 91/7/6
Australian		91/12/6 92/2/6
English Ingots		94/0/0 95/0/0
Banca		92/5/0 92/10/0
Billiton		92/5/0 92/10/0

OILS.

Linseed	ton	19/0/0 19/5/0
Cocoanut, Cochin		26/0/0 0/0/0
Do. Ceylon		23/10/0 24/0/0
Palm, Lagos		26/10/0 27/0/0
Rapeseed, English pale		24/10/0 24/15/0
Do. brown		23/0/0 0/0/0
Cottonseed ref.		19/10/0 0/0/0
Oleine		20/10/0 21/0/0
Lubricating, U.S.		4/0/0 5/0/0
Do. refined		5/10/0 12/0/0
TAR—Stockholm barrel		0/17/6 0/18/6
Archangel		0/12/6 0/0/0

TENDERS.

[Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 12 *noon on Thursdays.*]

BALLYMAHON (Ireland).—For additions and alterations to Workhouse, for the Union Guardians. Mr. J. C. Thompson, architect, Granard:—

P. Kelly	£575 0	M. Dalton, Abbeyshrule*	£497 10
M. A. Mellon	675 0		
C. Mayr	565 0		

* Accepted.

BANSTEAD (Surrey).—For building porter's lodge and alterations to workshops at the Kensington and Chelsea School. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street:—

W. Taylor	£570	J. B. Potter*	£439 0 0
Hunter & Bryant	513	Stewart & Co.	395 12 4

* Accepted.

BECKENHAM.—For the paving and making-up of certain public and private roads for the Local Board. Mr. G. B. Carlton, C.E. Surveyor, Local Board Offices, Beckenham:—

Sultan-street.

Griffith & Co.	£508 6 11	Mowlem & Co., Westminster*	£337 16 6
Woodham & Fry	418 18 1		
Mayo & Co.	372 9 1		

[Surveyor's estimate, £333 19s. 9d.]

* Accepted.

Lower Hayne-road.

Griffith	£1,183 11 8	Mayo & Co.	£855 1 9
Woodham & Fry	1,040 12 4	Mowlem & Co.*	797 0 0

[Surveyor's estimate, £857 10s.]

* Accepted.

Chancery-lane.

Griffith & Co.	£318	Mayo & Co.	£245 13 4
Woodham & Fry	282	Mowlem & Co.*	235 0 0

[Surveyor's estimate, £235.]

* Accepted.

Guydor-road.

Griffith & Co.	£756 9 4	Mayo & Co.	£519 18 0
Woodham & Fry	605 0 0	Mowlem & Co.*	499 15 0

* Accepted.

Church-road.

Griffith & Co.	£372 2 0	Mayo & Co.	£253 13 3
Woodham & Fry	277 2 10	Mowlem & Co.*	299 15 0

[Surveyor's estimate, £260.]

* Accepted.

BOURNEMOUTH.—Accepted for cabinet, bar fittings, and pewtering at the Grand Hotel buffet, Fir Vale, Bournemouth, for Messrs. Dore & Preston. Mr. E. Hawker, architect, Bournemouth.

H. & F. Warne, London £530 0 0

BRISTOL.—For the conversion of two dwelling-houses in Cobden-street into a Labour Home, for the English Church Army. Mr. W. Holbrow, surveyor, 16, John-street, Bristol:—

S. Williams	£255 0	H. E. Wild (accepted)	£198 17
S. Turner	250 0		

BRISTOL.—For the completion of four houses at Hopewell Hill, Kingswood, for Mr. P. Owen. Mr. W. Holbrow, surveyor, 16, John-street, Bristol:—

C. Clark	£195 0	McLean	£119 10
T. Brown (accepted)	150 0		

BRISTOL.—Accepted for pulling down and the erection of warehouses in Wine-street and Mary-le-port-street for Mr. W. Verrier. Mr. Herbert J. Jones, architect, Wellington-chambers, 12, Bridge-street, Bristol. Quantities by the architect:—

Geo. Humphreys, Bristol £4,609

Ten other tenders received.

CALVERTON (NOTTS).—For additions to dwelling-house, Salterford, for the Hucknall Torkard Local Board. Mr. William Swann, Hucknall Torkard:—

J. Dove	£120 0	Jas. Whyatt	£87 10
J. & R. Stainforth	95 0	R. S. Webster (accepted)	75 0
Levi Green	78 10	[All of Hucknall Torkard.]	

CARDIFF.—For the supply of cast-iron socket-pipes for the Corporation. Mr. J. A. B. Williams, Waterworks Engineer, Town Hall, Cardiff:—

Staveley Coal & Iron Co.	£6,271 17 6	Chas. Jordan & Sons	£5,990 10 4
J. & S. Roberts	6,035 17 6	Thos. Spittle, Ltd., Newport, Mon.*	5,908 2 3
Cochrane & Co.	6,028 12 6		

*Accepted.

CORK.—Accepted for rebuilding premises, John-street, for Mr. Cornelius O'Connell. Mr. James F. M'Mullen, architect, 30, South Mall, Cork. No quantities:—

Daniel Hegarty, Fish-street, Cork £670 0 0

ECCLES (Lancs.).—For paving and kerbing work, Franklin-street &c., for the Town Council. Mr. Arther C. Turley, Borough Surveyor, Town Hall, Eccles:—

Wm. Prescott	£118 18 5	Robert Lomax, Eccles (accepted)	£66 10 2
Snape & Son	69 11 3		

FAREHAM (Hants).—For alterations and additions to school, Porchester, for the School Board. Mr. W. Yeardye, architect, Town Hall, Fareham, Hants:—

C. Harding	£937	J. Crockerell	£765
T. P. Hall	918	J. Plummer, Fareham*	748
G. H. & A. Blackman	890	J. W. Perkins	730
G. Stallard	790	G. R. Holdaway†	643

* Accepted. † Withdrawn.

GUILDFORD.—For building a residence (exclusive of stoves and chimney pieces) in the parish of Stoke, next Guildford, Surrey, for Mr. Charles James Scott. Mr. Robert Clamp, architect. Quantities supplied:—

Colls & Co.	£3,005	Mitchell	£2,750
Rider & Son	2,988	Wheatley	2,512
P. C. May	2,947	R. Pink, Godalming*	2,437
Harris	2,895		

*Accepted.

KINGSTON-UPON-THAMES.—Accepted for the construction of a steel and iron bridge, Hogg's Mill River, for the Corporation. Major Macaulay, Surveyor, Clattern House, Kingston-on-Thames:—

The Stockton Forge Co., Stockton-on-Tees.... £2,937 10 0

LINCOLN.—For alterations at 142, High-street, to form printing and publishing offices. Mr. J. H. Cooper, architect, Lincoln. Quantities supplied by architect:—

H. S. & W. Close	£206 9	S. & R. Horton	£109 19
W. Wright & Sons	200 0	J. M. Harrison (accepted)	169 10
		[All of Lincoln.]	

LONDON.—For road-making works, Hunt-street, Chiswick, for the Chiswick Local Board. Mr. Arthur Ramsden, Surveyor, Vestry Hall, Turnham Green, W. Quantities by Surveyor:—

Broderick J.	£400 0	Rhodes, M. U., Chiswick*	£314 19
Hudson, S.	325 0	Serff Bros., & Co.	299 0

* Accepted.

LONDON.—For the extension of boiler-house at St. Luke's Workhouse, City-road. E.C., for the Guardians of the Holborn Union. Mr. H. Saxon Snell, architect. Quantities supplied :—

Dove Bros.	£865	J. O. Richardson, Albert Works, Peckham, S.E.*	£629
W. Bamford	775		
Flew & Co.	715	H. Wall & Co.	609
C. Dearing & Son	689	* Accepted.	

LONDON.—For alterations to No. 74, High-street, Lewisham, S.E. Mr. Albert Guy, architect :—

Kennard, Bros.	£374	Pritchard & Renwick	£308
Rosenberg	355	J. O. Richardson, Albert Works, Peckham*	284
Courtney & Fairburn	345		
		*Accepted.	

LONDON.—For additions to coach-house and stable at the Small-pox Hospital Ships, Long Reach, for the Managers of the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street :—

W. H. Lascelles & Co.	£313 0 0	John Ellingham, Bexley Heath*	£250 13 0
Tufts & Wood	290 11 6		
		* Accepted.	

LONDON.—For hot water warming and supply apparatus at the Western Hospital, Fulham, for the managers of the Metropolitan Asylums Board. Messrs. A. & C. Harston, Architects, 15, Leadenhall-street :—

W. Briggs	£1,950 1	W. Brown	£535 0
J. Grundy	765 0	Benham & Sons	510 0
Perkins & Son	675 0	Wenham & Waters	497 0
Strode & Co.	670 0	London and Birmingham Manufacturing Co.	494 0
Ellis & Co.	664 17		
Kemsley & Co.	660 0		
Potter & Son	659 0	J. & F. May	490 0
Hughes & Gotto	620 0	Clements, Jeakes, & Co. (accepted)	370 1
H. Conolly	580 13		
Newton, Chambers, & Co.	543 10		

LONDON.—Accepted for rebuilding No. 7, Cannon-place, Mile End, after fire.

Hewitt, Chiswell-street, E.C. £112 0 0

[No competition.]

LONDON.—For the erection of buildings in Chancery-lane, St. Pierre Harris, architect, 1, Basinghall-street, E.C. Quantities by Messrs. C. Stanzer & Son, 1, Finsbury-pavement, E.C.

Jacques (too late)	£5,601	Holloway Bros.	£4,310
Ringdon	5,507	Colls & Sons	4,122
Higgs & Hill	5,456	Gregory & Co.	3,977
Lawrance & Sons	4,500	Bush & Sons*	3,975
Longmire & Co.	4,330	* Accepted.	

LONDON.—For the erection of the first portion of a block of residential flats, Prince of Wales-road, Chelsea Reach, S.W. Mr. Charles Watkins, surveyor, Ingram House, Fenchurch-street, E.C.

H. Johnson £54,000 0 0

[No Competition.]

LONDON.—Accepted for pewtering work, &c., at "The Wheatsheaf," public-house, Balham, S.W., for Messrs. Tucker Bros. Mr. Hilton Nash, architect, Adelaide Chambers, London Bridge.

H. & F. Warne £169 19 0

LONDON.—For pewtering at "The Devonshire Arms," Marlowes-road, Kensington, for Mr. A. Dearling. Messrs. Treacher & Fisher, architects, Coleman-street, City :—

H. & F. Warne (accepted) £108 0 0

[No competition.]

LONDON.—For pewtering work at "The Canton Arms," South Lambeth-road, for Mrs. Bennett. Messrs. Thorpe & Furniss, architects, 154, High-street, Camden Town :—

Heath	£127 0 0	H. & F. Warne*	£109 0 0
Watts	126 17 6	* Accepted.	

LOWESTOFT (Suffolk).—For the erection of the Grand Hotel, for Mr. John Whaley. Mr. Walter Graves, architect, Winchester House, Old Broad-street, E.C. :—

Youngs & Son, Norwich (accepted) £13,708 0 0

NOTTINGHAM.—For additions to Worksop Manor, Notts, for Mr. John Robinson. Mr. W. H. Higginbottom, architect, 5, King John's Chambers, Nottingham. Quantities by the architect :—

Geo. Sadier	£718 0	J. Hutchinson	£565 0
E. Kent	712 14	Fish & Son	564 0
J. Shaw	663 5	Ilett & Sons, Worksop, Nottingham*	550 0
H. Vickers	660 0		
J. F. Price	643 0	* Accepted.	

ORPINGTON (Kent).—For additions and repairs to "Falkland Lodge," Orpington. Mr. St. Pierre Harris, architect, 1, Basinghall-street, E.C. :—

Somerford & Son	£134 0	Osborne & Co.*	£97 10
Stebbings & Pannett	120 0	* Accepted.	

ROCHESTER.—For fittings to the new Science School, in Municipal Offices, &c., for the Corporation. Messrs. F. T. W. Goldsmith, and E. J. Gosling, architects, Verulam-buildings, Gray's Inn, W.C. :—

Geo. M. Hammer & Co.	£298 0	North of England School Furnishing Co., Ltd.	£255 10
D'Oyly's Joinery Works Ltd.	275 0		

SEVENOAKS.—For laying a 9-in. stoneware pipe sewer, manholes, &c., Seal Hollow-road, for the Local Board. Mr. Jabez Mann, C.E., Surveyor, Local Board Office, Argyle-road, Sevenoaks :—

Wm. Wiltshire	£1,333 3 3	Edmund Iles, Wimbledon*	£1,133 9 1
Sidney Hudson	1,148 3 9		
		*Accepted according to schedule of prices.	

[Surveyor's estimate, £1,180.]

STIFFORD (Essex).—For the erection of a residence, Stifford, near Grays, for Mr. A. Parker. Mr. Frank E. Smee, architect, 12, West Smithfield, E.C. Quantities by Messrs. J. E. Goodchild & Son :—

William J. Lamb	£2,736 0	Hawtrey & Son	£2,330 0
H. R. Rons	2,343 9	McMillan & Houghton	2,021 17

WANSTEAD.—For the erection of Trumpington-road Schools, for the Wanstead School Board. Mr. John T. Bressey, architect, 70 and 71, Bishopsgate-street Within, E.C. :—

E. Houghton & Son	£15,415 0	S. J. Scott	13,237 0
Wm. Gregar & Son	13,924 0	A. Reed & Son	12,876 0
W. J. Maddison	13,730 0	James Catley	12,159 0
Harris & Wardrop	13,497 0	DeVereBuckingham& Co. (withdrawn)	11,050 10
C. Norman Phillips	13,497 0		
Wm. Watson	13,300 0		

WESTON-SUPER-MARE.—For the erection of three houses, Richmond-street and Beach-road, for Mr. W. Gale. Mr. W. J. Spencer, architect, 12, James-street, Weston-Super-Mare. No quantities supplied :—

T. Palmer	£1,883	J. Hands	£1,640
J. Palmer	1,845	C. Taylor	1,573
W. M. Dubin	1,750	A. J. Dorey	1,539
C. Addicott	1,700	T. Allen (accepted)	1,500

[All of Western-Super-Mare.]

WHITBY.—For the execution of sewerage works (section 12) for the Local Board. Mr. Thos. Keat Scott, Surveyor.

Wm. Blooman	£147 0	Robinson Harland, Whitby*	£135 18
John Braim	147 0		
		*Accepted.	

WICK (N.B.).—For the supply and laying of 5,710 linear yards of fire-clay and cast-iron pipes, and other drainage works in connexion, for the Corporation. Messrs. Gordon & MacBey, civil engineers, Elgin. Quantities by engineers :—

James Shaw	£3,106 18 9	R. Fraser	£2,586 6 2
R. C. Brebner	3,096 6 1	Thomas Munro	2,558 10 2
Wm. G. Flett	2,065 2 6	Tait & Reid, Wick*	2,375 9 0
L. W. Macdonald	2,847 9 7	*Accepted.	

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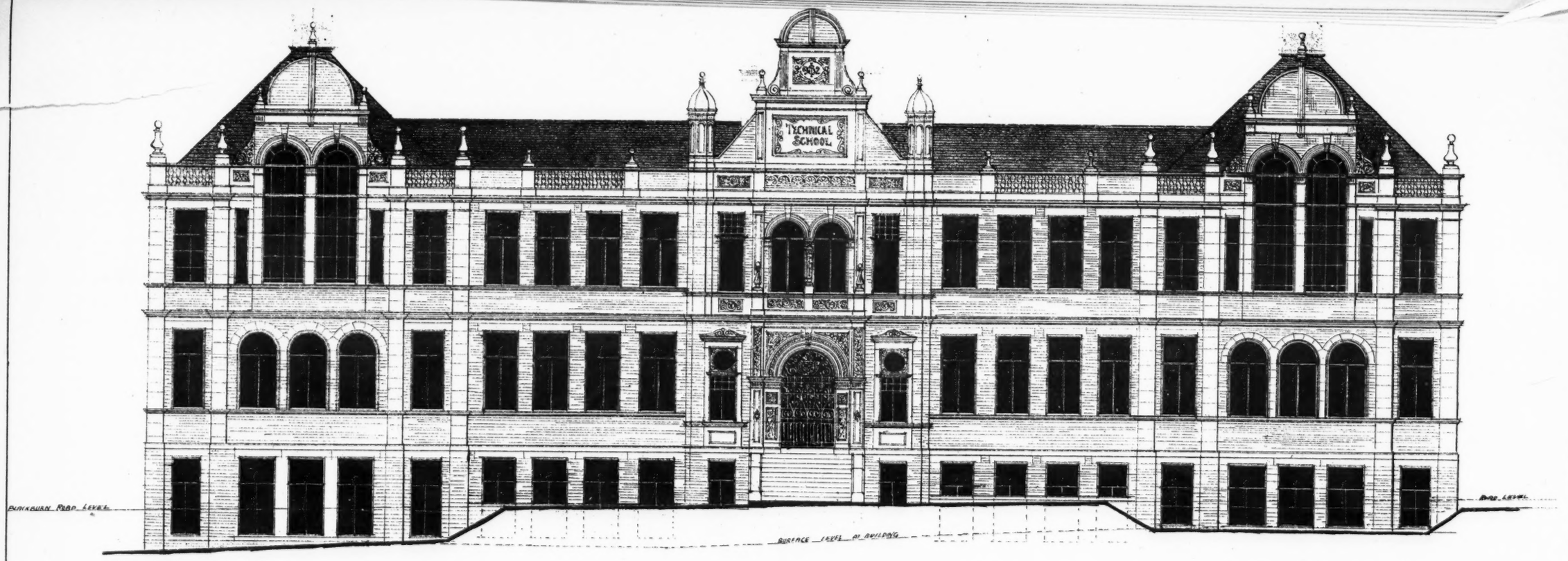
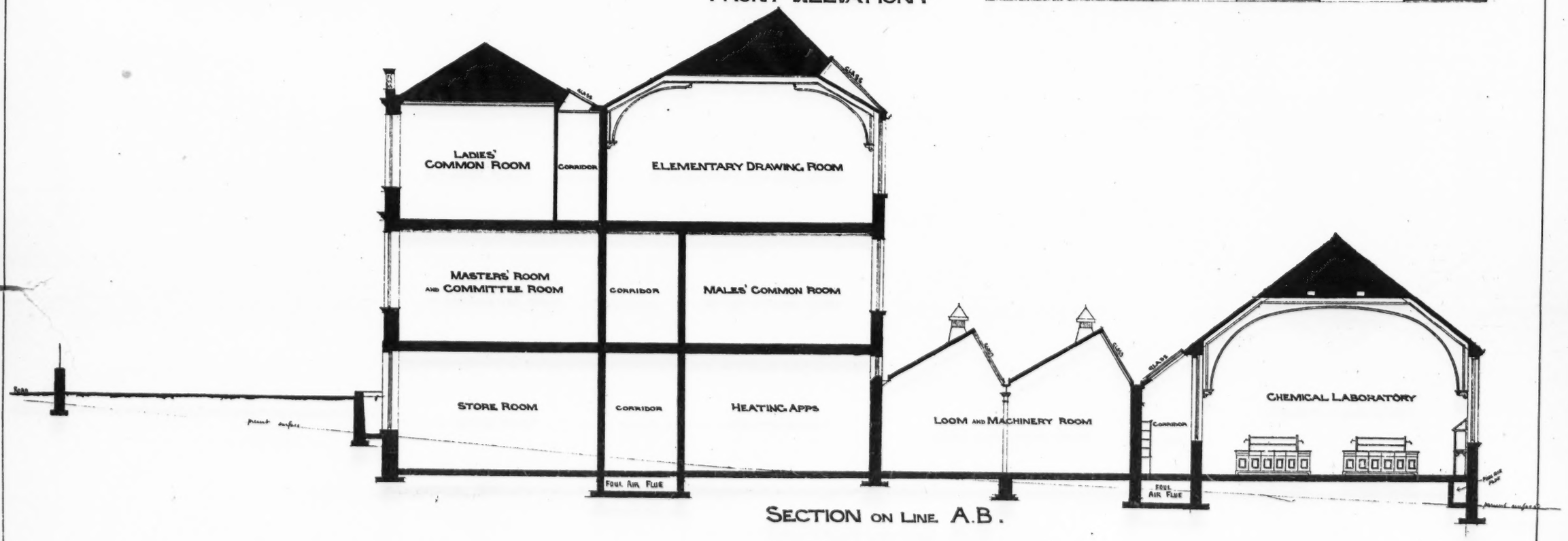


FRONT ELEVATION.

SCALE OF FEET.



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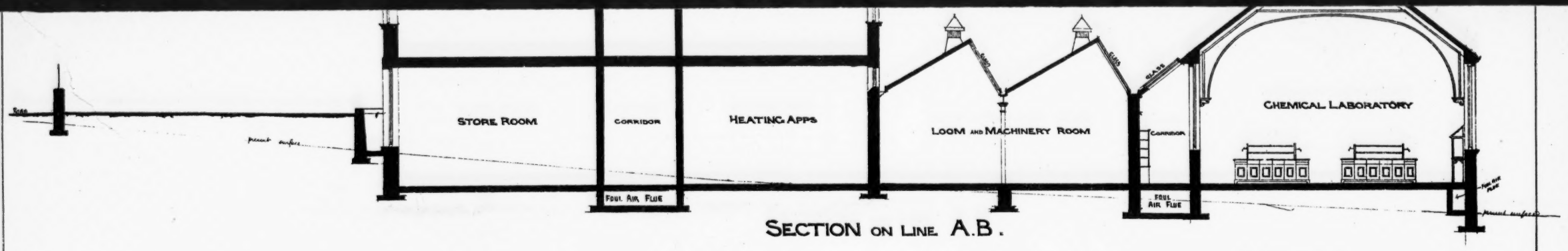

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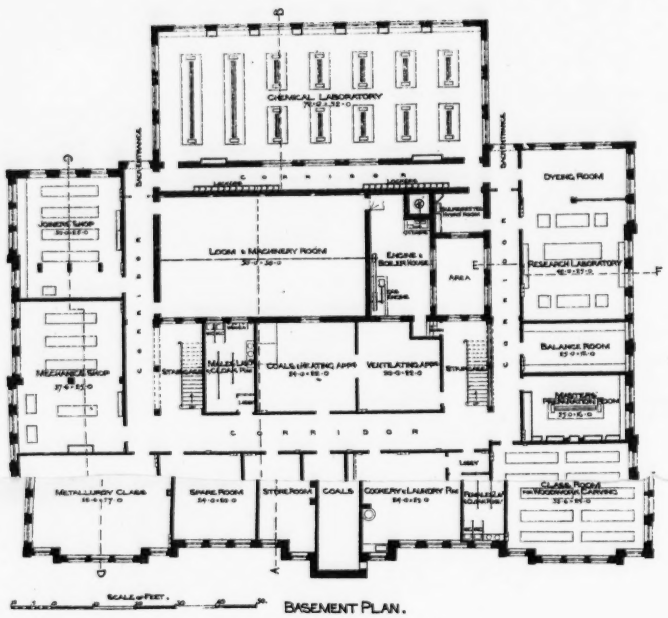
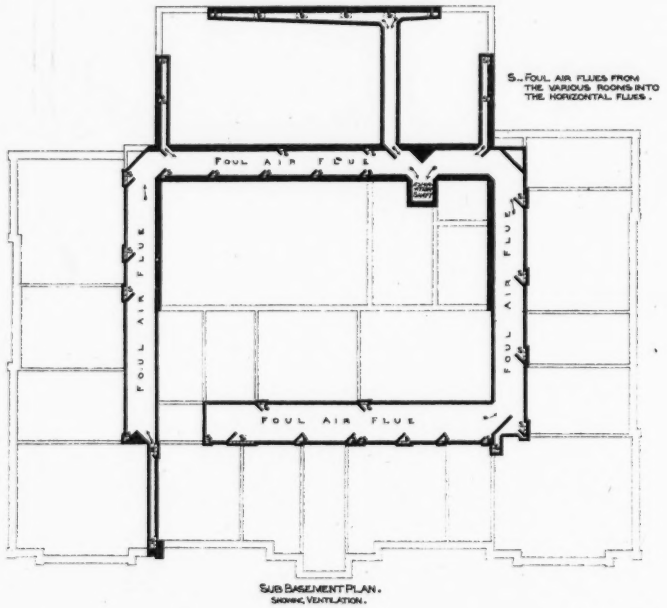
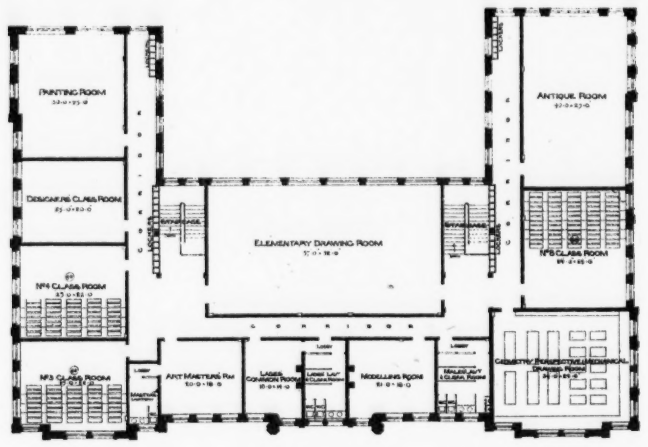


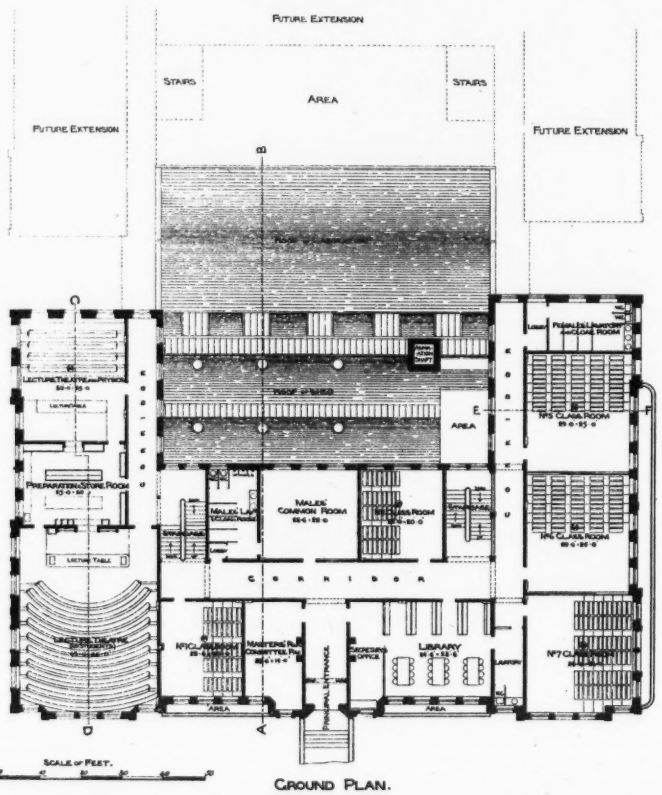
BASEMENT PLAN.



SUB BASEMENT PLAN.
SHOWING VENTILATION.



FIRST FLOOR PLAN.



GROUND PLAN.

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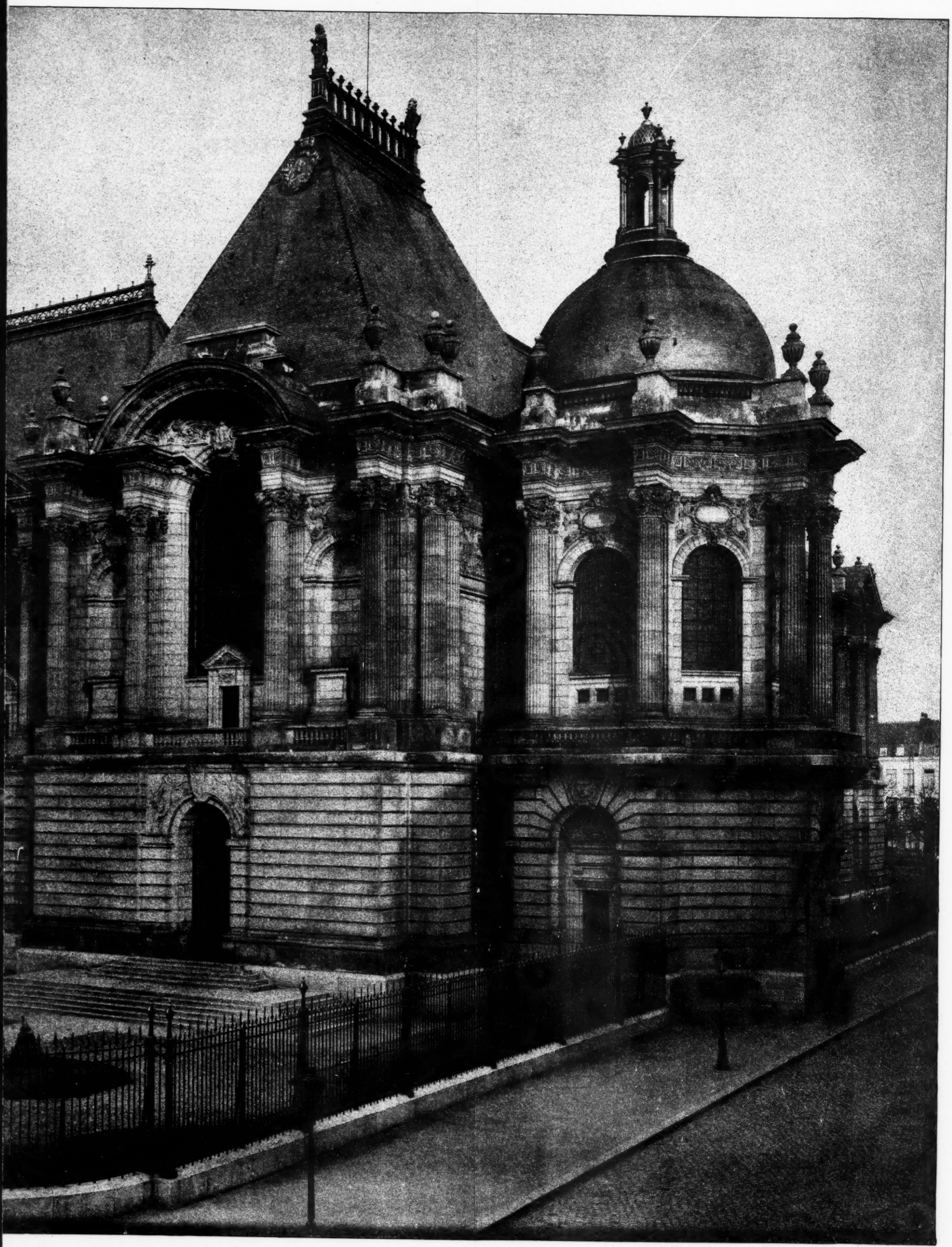

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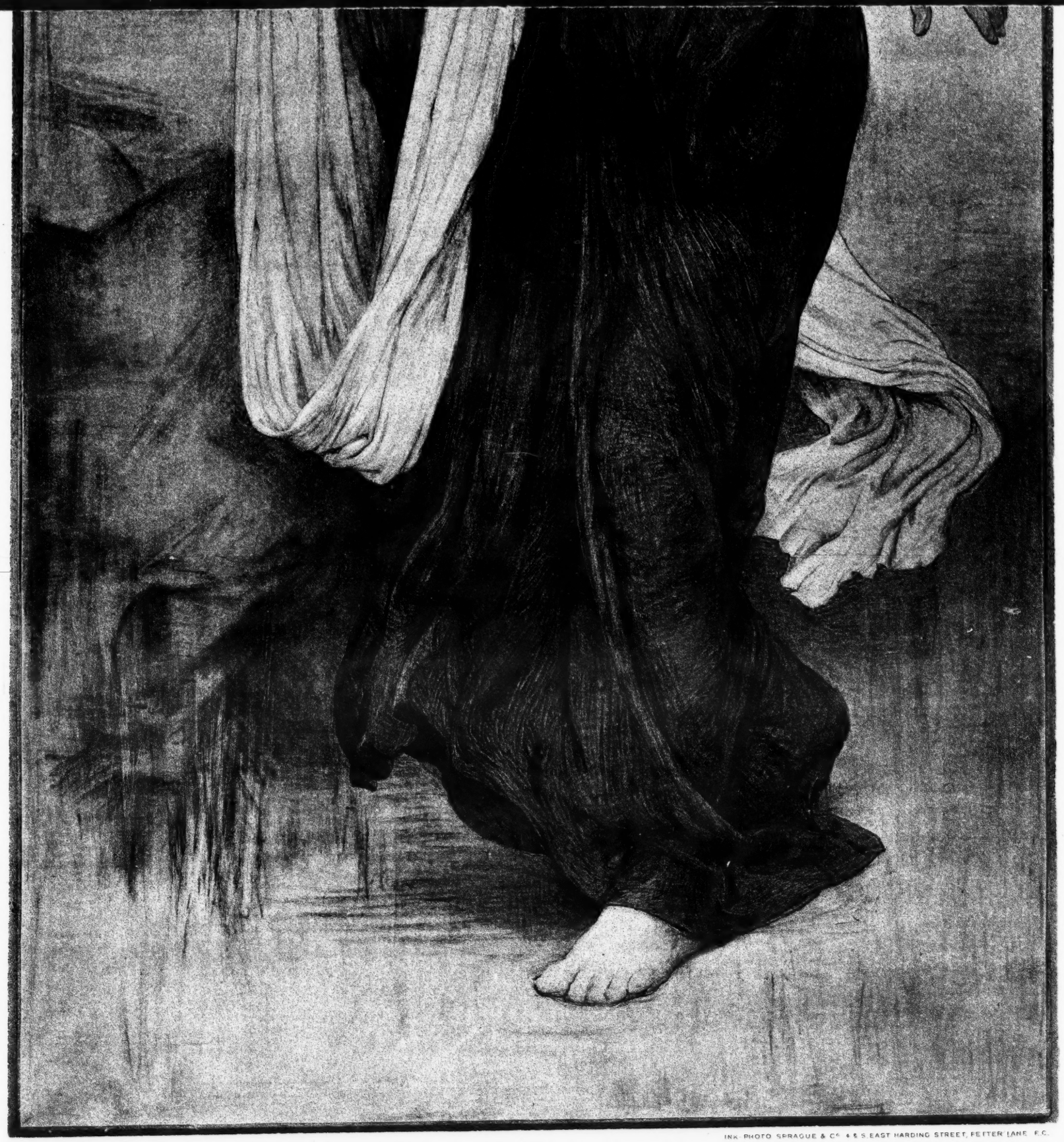

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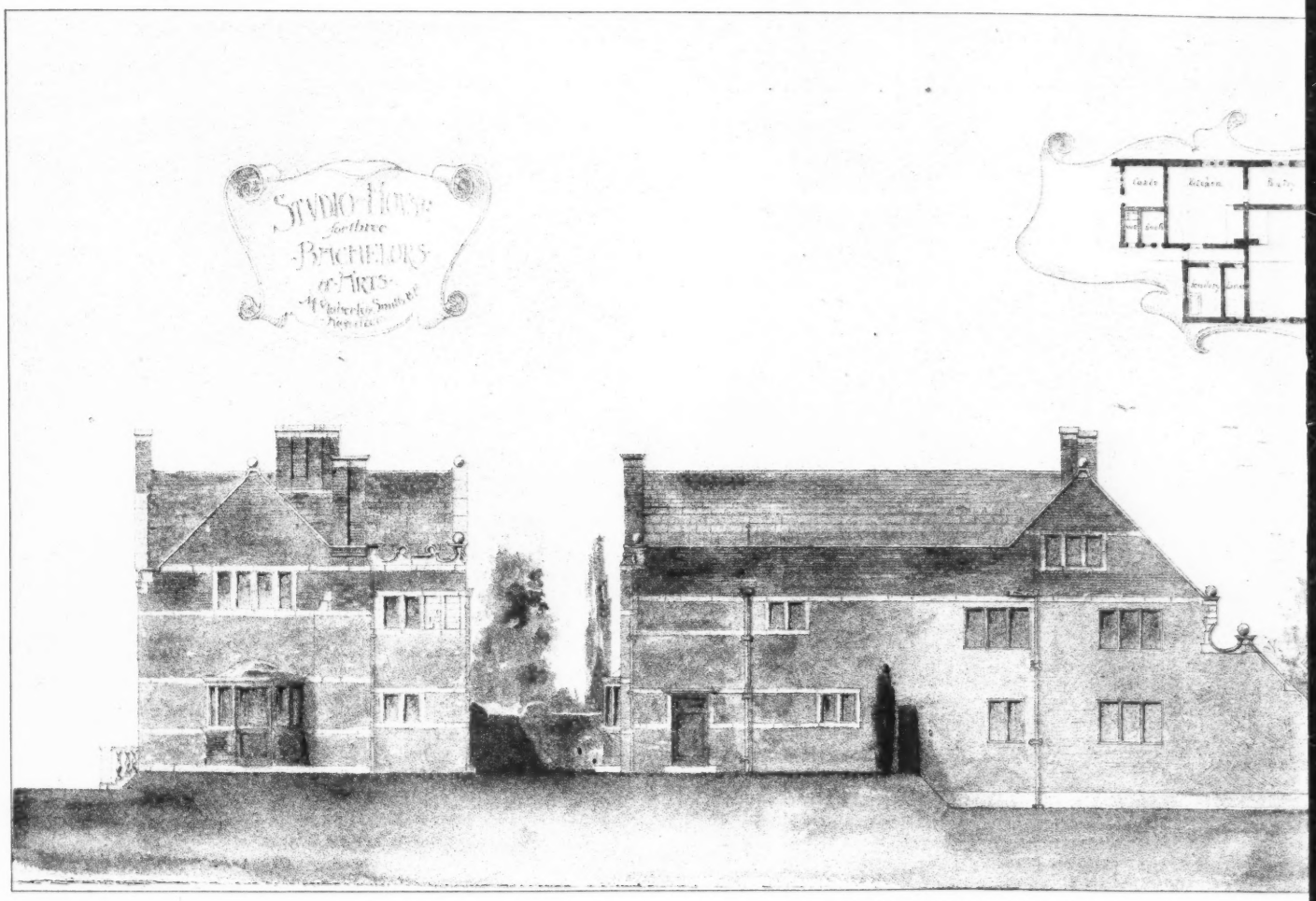

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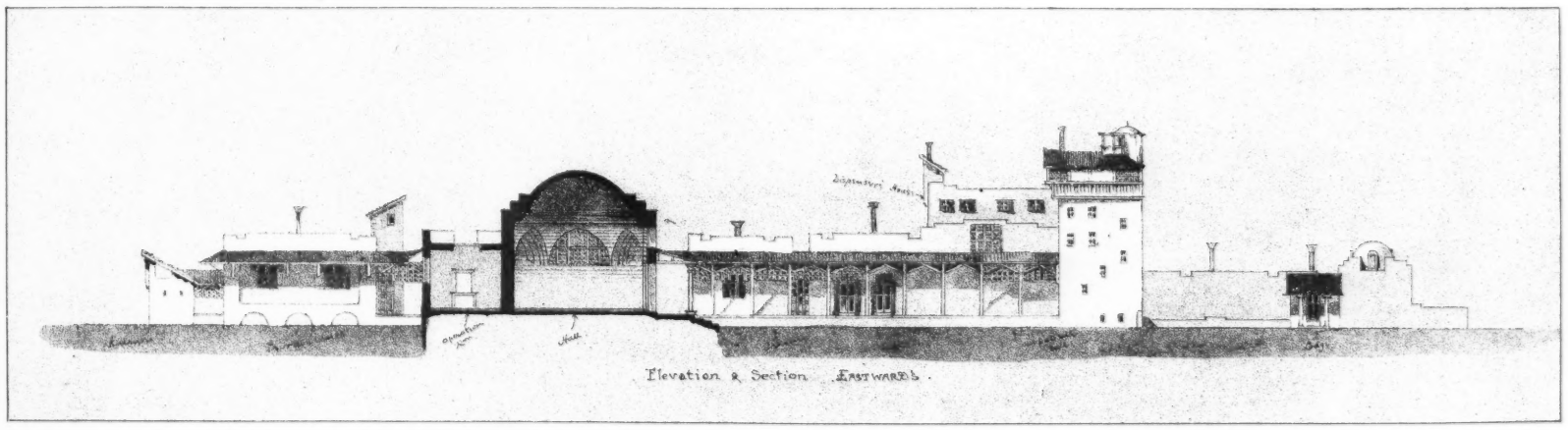

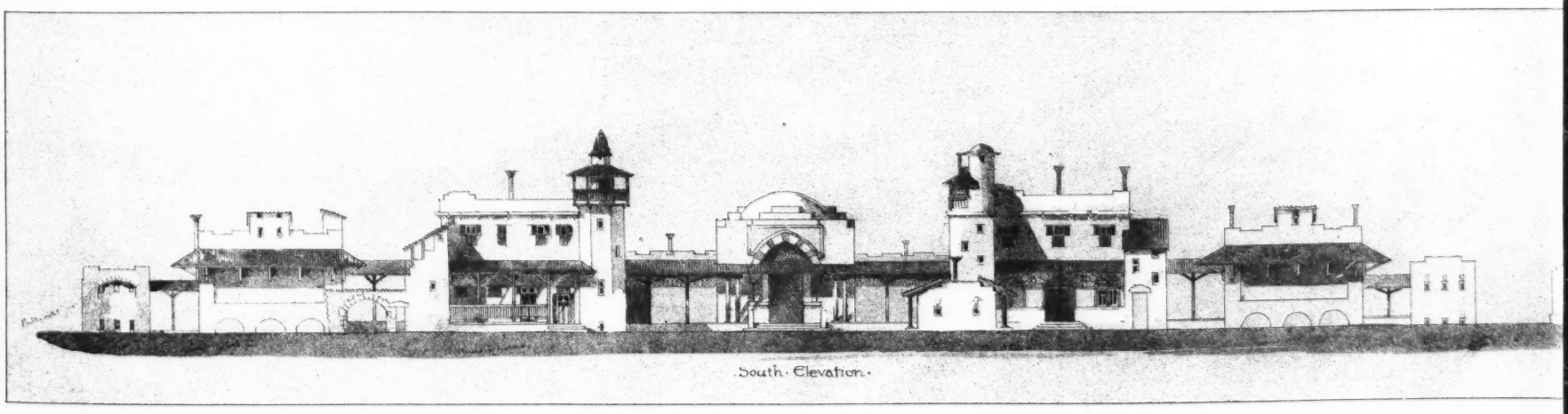

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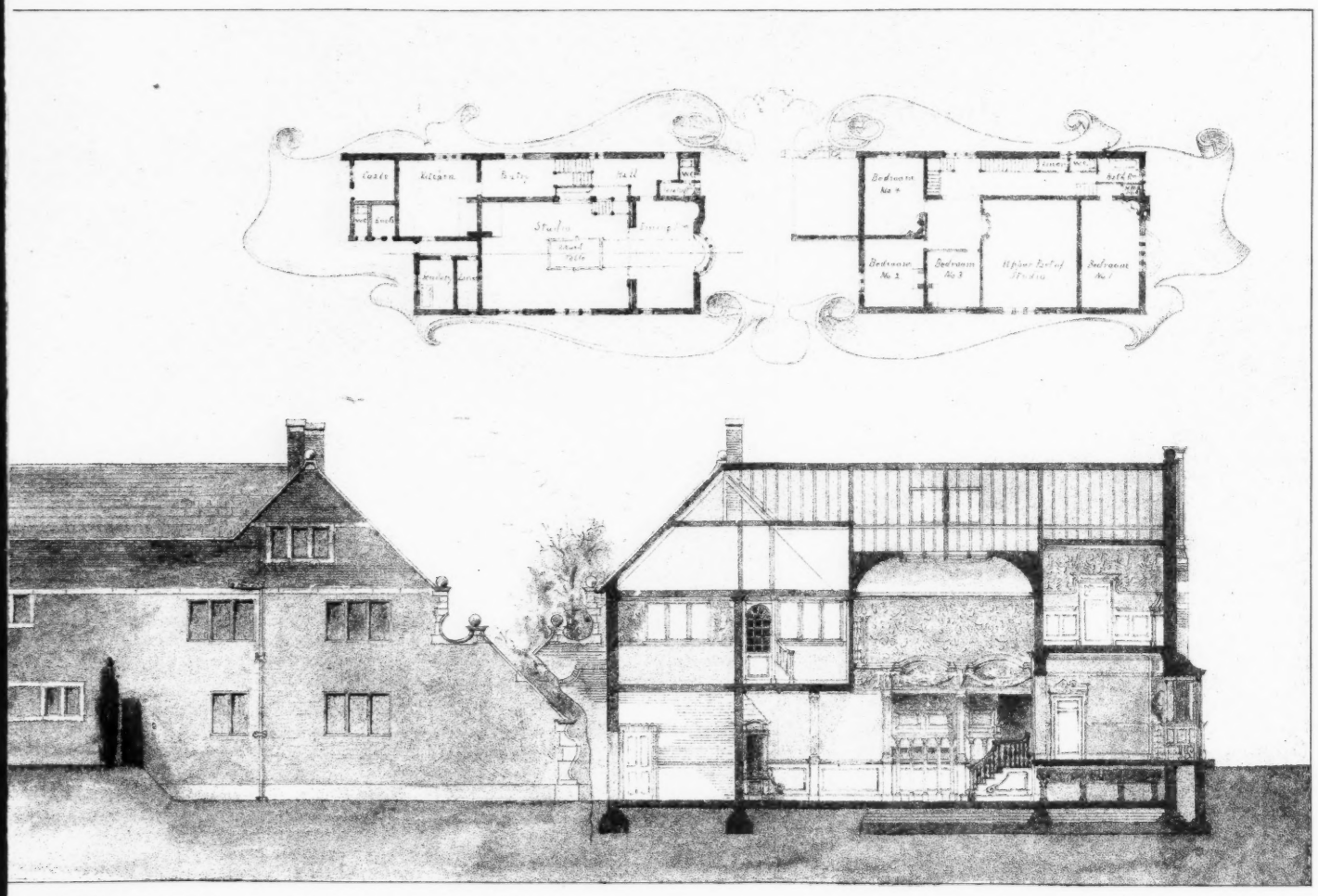
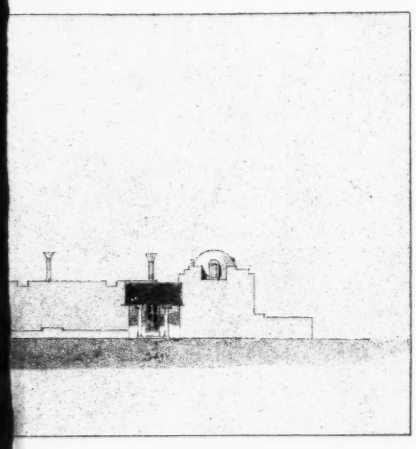
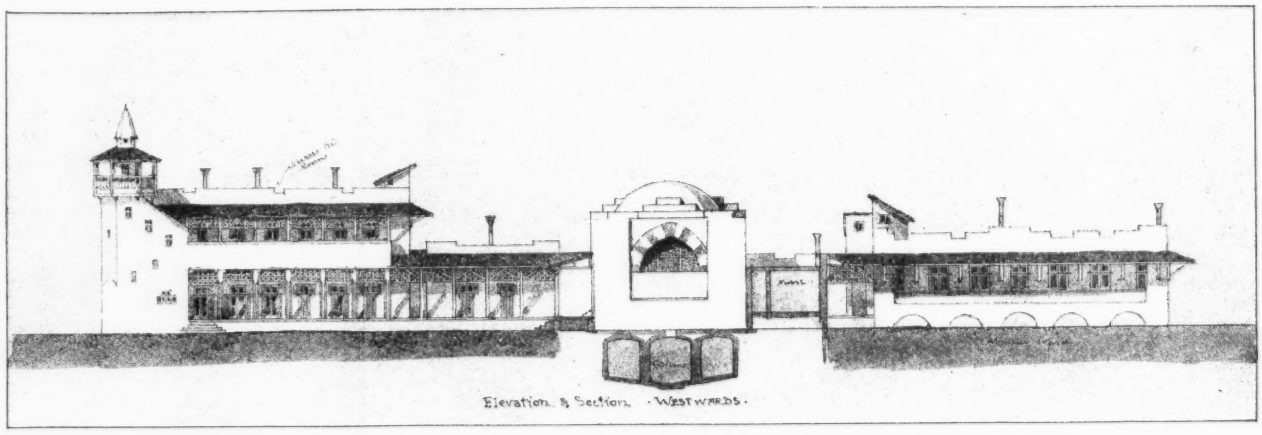


A STUDIO HOUSE.—MR. M. M. SMITH, ARCHITECT.





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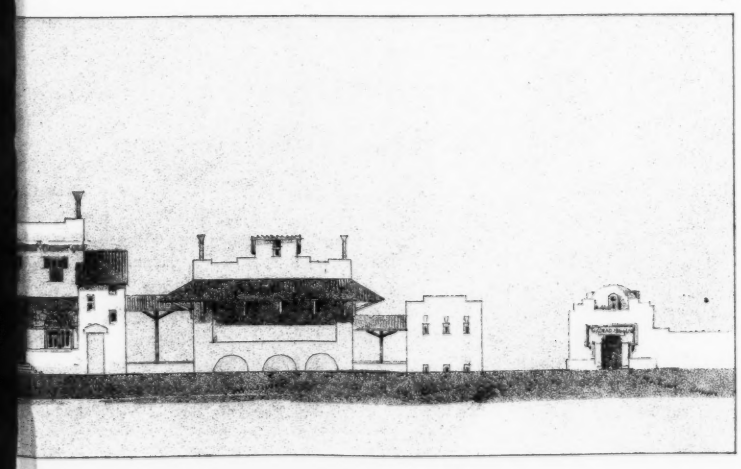

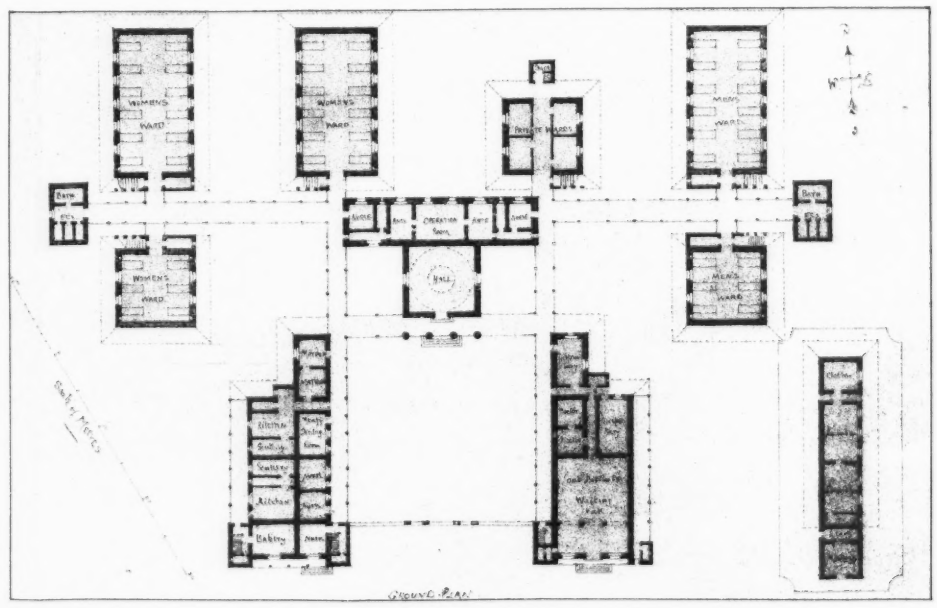

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